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SUPPLEMENT II

TO

TECHNICAL REPORT 46

BASIC DATA

M H-34/HIDAL CALIBRATION TRIALS

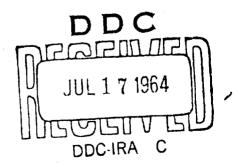
1963

Sponsored by

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Project Agile

ARPA Order 256



JUNE 1964

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UNITED STATES ARMY BIOLOGICAL LABORATORIES FORT DETRICK

U.S. ARMY BIOLOGICAL LABORATORIES Fort Detrick, Frederick, Maryland

SUPPLEMENT II to TECHNICAL REPORT 46

BASIC DATA FROM H-34/HIDAL CALIBRATION TRIALS 1963

This research was supported by the Advanced Research Projects Agency Project Agile under ARPA Order 256.

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DIRECTOR OF BIOLOGICAL RESEARCH

Project ARPA Order 256

June 1964

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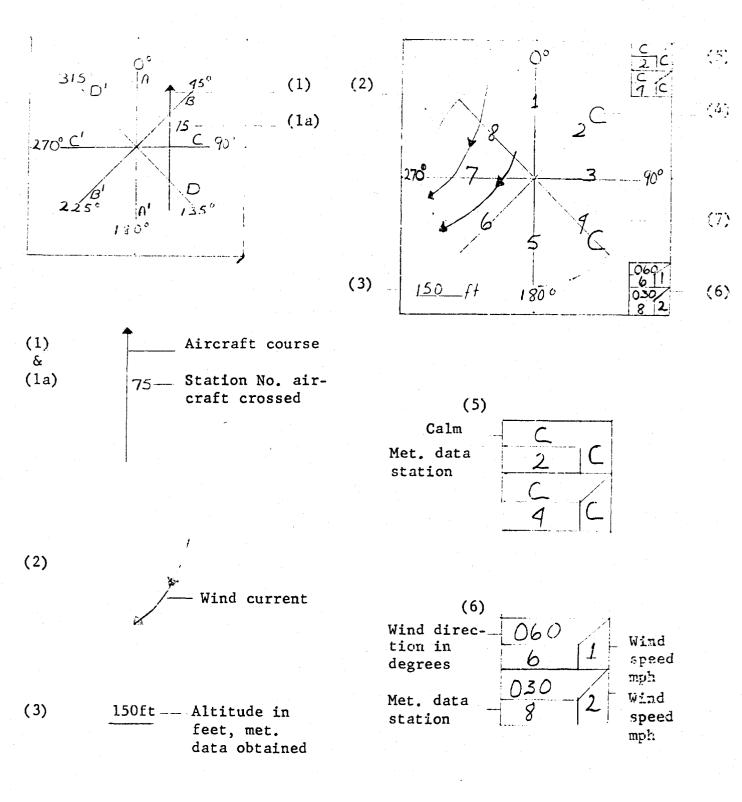
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INTRODUCTION

This supplement concerns the calibration of a modified H-34/HIDAL spray system and presents the basic data and spray deposit patterns obtained in 100 test flights at Eglin Air Force Base between 27 June and 16 July 1963. The data are presented in the sequence of ground flow determinations, mass median diameter calculations, and mass deposit measurements.





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Sky Conditions

Example: 25 (1) 100 (11) / + 7

1 2 3 4 5 6 7

- 1 Cloud cover height in hundreds of feet
- 2 Cloud Amount 0 No clouds
 1 Fair weather cumulus
 1 Variable sky
- 3 Second cloud cover height in hundreds of feet
- 4 Cloud Amount
- 5 Barometric Tendency / Rising
 - Steady
- 6 Overcast

FQT - Frequent

/ - Visibility in miles

Remarks

GFH -	Ground Fog Heavy	N	-	North
OCNL -	Occasional	E	-	East
C ~	Clouds	S	-	South
CLR -	Clear	W	-	West
CU -	Cumulus	LTG	-	Lightning
СВ -	Cumulo-nimbus	н	-	Haze

S - Smoke

H-34/HTDAL GROUND FLOW & FITCHT DATA

NATE CALIBRATED: 26 June	1963	DATE TEST FLOWN: 27 June 1963			
LIQUID SPRAYED: Fuel 011		TOTAL NOZZLES OPEN: 60			
NOZZLE TYPE: 8010		LIQUID TEMP:	350	F.	
DURATION OF SPRAY: 30	Sec.	PUMP PRESSURE:		PS	
TOTAL AMOUNI SPRAYED: 25	Gal.	BOOM PRESSURE:	3.2	PS.	
		FLOW RATE CALIBRATED:	54	GP:	

OPERATIONAL DATA DURING FLIGHT

Run 1 - Shakedown flight Run 2 - Pin sheared in pump

and the the beauties

DATE:	27 June 1963	SPREAD FACTOR: 6.U	
FLIGHT #:	1	CONVERSION FACTOR: 2.2	_
SAMPLE LI	NE: B	PAPER: Kromekote, white	_
FLOW RATE	:	MATERIA!: Fuel Oil	_
		SYSTEM: HIDAL	

STA.	DROP #	SIZE	STA.	DROP #	SIZE
78	1	3500*			
78	2	3400			
78	4	3300			
78	3	3200			
78	5	3100			
78	6	3000			
78	7	2900			
79	8	2800			
79	9	2700			
79	10	2600	77		75

$$\frac{\text{MMD}}{\text{Spread Factor x Con. Factor}} = \frac{3500}{6.0 \text{x} 2.2} = 265.2 \text{ Microns}$$

Max. Sph. Dia. =
$$\frac{3500}{6.0}$$
 = 583.3 Microns
Min. Sph. Dia. = $\frac{75}{6.0}$ = 12.5 Microns

MATERIAL: Fuel	Oil		FLOW	RATE:		
DATE. 27 June 1963			SYSTE	M:HID	AL	
FLIGHT #: 1		AIRSP	EED:	55	Knots	
SAMPLE LINE: 5		 -	ALTII	TUDE:	100	Feet
TIME OF RELEASE:	0437	Hours	AIRCR	AFT COURSE:	315	Degrees
DURATION:	10	Sec.				
STATION G.P.A.	STATION	G.P.A,	STATION	G,P.A.	STATION	G.P.A.
Stations 1 - 50 Bla	an k		54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74	0.5 0.3 0.4 0.3 0.2 0.4 0.3 0.3 0.2 0.3 0.3 0.2 0.2 0.2 0.2 0.2 0.2 0.2 0.2	81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98	0.1 0.2 0.3 0.4 0.3 0.3 0.4 0.5 0.4 0.5 0.4 0.5 0.4 0.5 0.4 0.5 0.4 0.5 0.4 0.5 0.4 0.5 0.4 0.5 0.4 0.3 0.4 0.5 0.4 0.5 0.4 0.5 0.6 0.6 0.7 0.7 0.7 0.7 0.7 0.7 0.7 0.7

Part of the Control o ឧង 150 051 Marie Company of the 9 ্<u>)</u> ত ggr ٠,٠ # \$ 11 R c 2 EXAMIN M M. IMIC 3 - 2 -

DATE. 27 June 1905	SPREAD FACIUR: 6.0
FLIGHT #: 2	CONVERSION FACTOR: 2,2
SAMPLE LINE: B	PAPER: Kromekote, white
FLOW RATE:	MATERIAL: Fuel Oil
	CVCTTM: UTDAT

STA.	DROP #	SIZE	STA.	DROP #	SIZE
28	1	4500			
28	3	4000*			
28	4	390 0			
28	2	380 0			
28	5	370 0			
28	6	360 0			
28	7	350 0			
28	8	3400			
28	10	3300			
28	9	3200			
28	11	3100	5 0		100

MMD =
$$\frac{\text{Spot D Max}}{\text{Spread Factor x Con. Factor}} = \frac{4000}{6.0 \text{x2.2}} = 303.0 \text{ Microns}$$

Max. Sph. Dia. =
$$\frac{4500}{6.0}$$
 = 750 Microns

Min. Sph. Dia. =
$$\frac{100}{6.0}$$
 = 16.7 Microns

MATERIAL:	Fuel Oil	1	FLOW RATE:		
DATE:27	June 1963		SYSTEM:	HIDAL	
FLIGHT #:	2		AIRSPEED:	55	Knots
SAMPLE LINE:	В		ALTITUDE:	100	Feet
TIME OF RELEASE:_	0440	Hours	AIRCRAFT COU	RSE: 315	Degrees
DURATION:	14	Sec.			
STATION G.P.A.	STATION	G.P.A.	STATION G.P.A.	STATION	G.P.A.
Stations 1 - 26 B	28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 44 46 47 48	0.2 0.2 0.7 0.7 1.0 0.9 1.3 1.2 0.8 0.9 0.6 0.6 0.7 0.7 0.7 0.7 0.7 0.7 0.7 0.7	Stations 51 - 10	O BIETE	

1 5 5 200. The second s	
	2 0 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2

H-34/HIDAL GROUND FLOW & FLIGHT DATA

DATE CALISPATED: 1 July 1963	DATE TEST FLOWN: 2 July 1963			
LIQUID SPEAYED: 2 Fuel 611, 1 Furple	TOTAL MOZZLES OPEN:	60		
HOZZLE TYPE: 8010	LIQUID TEMP:	37° C		
DURATION OF SPRAY: 30 Sec.	PUMOP PRESSURE:	40	PSI	
TOTAL ANDUST SPRAYED: 30 Gal.	BOOM PRESSURE:	36	PAI	
	FLOW RATE CALIFFATED	. 60	GPN	

OPERATIONAL DATA DURING PLIGHT

Above information same for Runs 1 - 6.

DATE CALINEATED: 1 July 1963	DATE TEST FLOWN: 2 July 1963
LIQUID SFRAYED: 2 Fuel 011, 1 Purple	TOTAL NOZZLES OFEN: 60
NOZZLE TYPE: Check velves only	LIQUID TENT: 37° C
DURATION OF SPRAY: 30 Sec.	PUNT PRESSURE: 16 PSI
TOTAL AMOUNT SPRAYED: 40 Gal.	BOOM PRESSURE: 14 PSI
•	FLOW RATE CALIBRATED: 80 GFM

OPERATIONAL DATA DURING FLIGHT

Above information same for Runs 7 - 12.

2 Ju	1, 1000		CONVERSION FACTOR. 2.2
FLIGHT NO.:	1		PAPER: Kromekote, white
SAMPLE LINE:	С		MATERIAL: 2 Fuel Oil, 1 Purple
FLOW RATE:	6 0	GPM	SYSTEM: HIDAL

STA.	DROP #	SIZE	STA,	DROP #	SIZE
77	2	4400*			
77	1	43 00			
77	6	4 2 00			
77	5	41 00			
78	8	4000			
77	7	38 00	76	1	75 (smallest)
77	3	37 00			
77	4	36 00			
77	10.	35 00			
77	9	3400			

MMD =
$$\frac{67.72+0.1420 \text{ (Spot D Max)}}{\text{Con. Factor = 2.2}} = \frac{4400}{6.355 \times 2.2} = 314.7 \text{ Microns}$$

Max. Sph. Dia. =
$$\frac{67.72+0.1420(4400)}{6.355}$$
 = $\frac{4400}{6.355}$ = 692.4 Microns

Min. Sph. Dia. = 48 Microns

MATERIAL: 2 Fuel Oil,	1 Purpl	e	FLOW	RATE:	6 0	GPM
DATE: 2 July 19	63		SYSTE	M:	HIDAL	
FLIGHT 4: 1			AIRSP	EED:	55	Knots
SAMPLE LINE:			ALTIT	UDE:	100	Feet
TIME OF RELEASE: 04	37	Hours	AIRCR	AFT COURS	E: 360	Degrees
DURATION: 12	.5	Sec.				
STATION G.P.A.	STATION	G.P.A.	STATION	G.P.A.	STATION	G.P.A.
Stations 1 - 72 Blank			73 74			
			75			
			76	0.4		
			77	1.0		
			78	1.4		
			79	1.3		
			8 0	1.1		
			81	0.4		
			82	0.4		
			83	0.0		
			Chabland	84 - 100	P11.	

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BARTON HOLIMAN

DATE:	2 July 1963	3	CONVERSION	FACTOR: 2,2
FLIGHT #:	2		PAPER: K	romekote, white
Sample li	NE: C		MATERIAL:	2 Fuel Oil, 1 Purple
YLOW KATE	: <u>60</u>	<u> </u>	SYSTEM:	HIDAL

STA.	DROP #	SIZE	STA.	DROP ♥	SIZE
30	3	5000			 -
30	4	4 7 00			
28	1	4400*			
29	2	4300			
28	8	4200			
3 0	5	4100			
31	6	4000	38	1	100 (smallest)
25	7	3900			
25	9	3800			
28	10	37 00	,		

$$\frac{\text{MMD}}{2.2} = \frac{67.72 + 0.1420 (\text{Spot D Max})}{2.2} = \frac{4400}{6.355 \times 2.2} = 314.7 \text{ Microns}$$

Max. Sph. Dia. =
$$67.72 \div 0.1420$$
 (5000) = $\frac{5000}{6.430}$ = 777.6 Microns

Min. Sph. Dia. = 63 Microns

MATERIAL: 2 Fuel 01	1, 1 Purp	<u>le</u>	FLOW RAT	TE:	60	GPM
DATE: 2 Jul	y 1963		SYSTEM:	HIDAL		
FLIGHT #: 2			AIRSPEE):	55	Knots
SAMPLE LINE: C			ALTITUDE	:100		Feet
TIME OF RELEASE:	0439	Hours	AIRCRAFT	COURSE:_	360	Degrees
DURATION:	11	Sec.				
STATION G,P.A.	STATION	G,P,A.	STATION (G.P.A,	STATION	G.P.A.
Stations 1 - 23 Bla	nk 24 25					_
	26					
	27					
	28					
	29					
	30	1.0				
	31	1.1				
	32	0.6				
	33					
	34					
	35	0.8				
	36	0.7				
	37	0.4				
	38					
	39					
	40					
		0.1				
		42 - 100	Blank			

0017 2 2 2 2 .wly 1963 047.54 × 3.8 200 23.4 21.9 Marie 23 g Ė •, 3 1. # 8 ş × 8 Les et et de la laction de laction de la laction de laction de laction de la laction de la laction de la laction de la laction de lac ~ - . .

DATE: 2 July 1963	CONVERSION FACTOR: 2.2
FLIGHT #: 3	PAPER: Kromekote, white
SAMPLE LINE: C	MATERIAL: 2 Fuel Oil, 1 Purple
FLOW RATE: 60 GPM	SYSTEM: HIDAL

STA.	DROP #	SIZE	STA.	DROP #	SIZE
75	4	3700			
79	3	3200*			
79	2	3100			
78	1	3000			
79	5	2900	78	1A	100 (smallest)
78	6	2800			, ,
78	7	2700			
78	8	2600			
78	10	25 00			
78	9	2400			

$$\frac{\text{MMD}}{\text{Con. Factor}} = \frac{67.72 + 0.1420 (\text{Spot D Max})}{\text{Con. Factor}} = \frac{3200}{6.355 \times 2.2} = 237.3 \text{ Microns}$$

Max. Sph. Dia. =
$$67.72+0.1420(3700) = \frac{3700}{6.430} = 593.0$$
 Microns

Min. Sph. Dia. - 63 Microns

MATERIAL: 2 Fuel Oil, 1 Purple			FLOW RATE:		60	GPM
DATE: 2 Ju	ly 1963		SYSTEM: H		IDAL	
FLIGHT #: 3			AIRSPE	ED:	75	Knots
SAMPLE LINE:	С		ALTITU	DĒ:	100	Feet
TIME OF RELEASE:	0459	Hours	AIRCRA	FT COURSE	:360	Degrees
DURATION:	7.5	Sec.				
STATION G.P.A.	STATION	G.P.A.	STATION	G. P.A.	STATION	G.P.A.
Stations 1 - 73 Bla	nk		74	1.4		
			75			
			76 77			
			78			
			.0 79			
			80			
			81			
			82	0.7		
			83	0.1		
			Stations	84 - 100	Blank	

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DATE:	2 July 19	163	CONVERSION FACTOR: 2,2
FLIGHT #:_	4		PAPER: Kromekote, white
SAMPLE LIN	тв: <u>с</u>		MATERIAL: 2 Fuel 011, 1 Purple
FLOW RATE:	_60	GPH	SYSTEM: HIDAL

STA.	DROP #	SIZE	STA.	DROP #	SIZE
29	1	3400*			
24	4	33 00			
29	2	3100			
29	3	3000			
29	5	2900			
29	6	2800	26	1A	100 (smallest)
29	7	2700			
29	8	26 00			
29	9	250 0			
29	10	2400			

MMD =
$$\frac{67.72+0.1420 \text{ (Spot D Max)}}{\text{Con. Factor} = 2.2} = \frac{3400}{6.355 \times 2.2} = 250.2 \text{ Microns}$$

Max. Sph. Dia. =
$$67.72+0.1420(3400) = \frac{3400}{6.430} = 550.4$$
 Microns

Min. Sph. Dia. = 63 Microns

MATERIAL: 2 Fuel Oil, 1 Put	rple	FLOW	RATE:	6ე	GPM
DATE: 2 July 1963		SYSTE	M:	HIDAL	
FLIGHT #:4		AIRSP	EED:	75	Knots
SAMPLE LINE: C		ALTIT	UDE:	100	Feet
TIME OF RELEASE: 0500	Hours	AIRCR	AFT COUR	SE: 360	Degrees
DURATION: 7	Sec.				
STATION G.P.A. STATION	N G.P.A.	STATION	G.P.A.	STATION	G.P.A.
Stations 1 - 23 Blank 24 25 26 27 28 29 30 31 32 33	0.9 0.9 0.0 0.0 0.3 0.5 0.4 0.4 0.4 0.4 0.4				

•

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DATE:2	July 1963	CONVERSION FACTOR: 2.2
FLIGHT #:	5	PAPER: Kromekote, white
SAMPLE LINE:_	c	MATERIAL: 2 Fuel 011, 1 Purple
FLOW RATE:	60 GPM	SYSTEM: HIDAL

STA,_	DROP #	SIZE	STA.	DROP #	SIZE
79	5	4800			
78	1	4300*			
80	6	4200			
78	2	4100			
78	4	4000	78	1A	100 (smallest)
78	3	3900			
79	8	3700			
78	7	3600			
80	10	3 50 0			
80	9	3400			

MMD - $\frac{67.72+0.1420 \text{ (spot D Max)}}{\text{Con Factor}} = \frac{4300}{6.355 \times 2.2}$ 308.2 Microns

Max. Sph. Dia. = $67.72+0.1420(4000) = \frac{4800}{6.430} = 749.2$ Microns

Min. Sph. Dia. = 63 Microns

MATERIAL: 2 Fuel C	il, l Pur	ole		FLOW	RATE	i:	6 0	GP M
DATE: 2 Jul	у 1963			SYSTE	:M:		HIDAL	
FLIGHT #: 5				AIRSP	ERD:		55	Knots
SAMPLE LINE:	<u> </u>			ALTIT	. aqu		75	Feet
TIME OF RELEASE:	0518	Hours		AIRCR	APT	COURSE:_	360	Degrees
DURATION:	09	Sec.						
STATION G.P.A.	STATION	G.P.A.	<u> </u>	STATION	G,P	,Α,	STATION	G. P.A.
Stations 1 - 73 Bla	nk						74	2.7
•							75 76	
							76	0.9
							77	
							73 79	
							80	- •
							81	
							82	
							83	
							84	
							85	
							86	0.0
								87 - 100
								Blank

Total <u>12.0</u>

2 Mr. 1985 2 Mr. 1985 2 Mr. 1 Mr. 1 Mr. 1 2 Mr. 1 3 Mr 2 0 43 43 70 70 190 233 21.0 100 234 23.0 777 2 JUL 1963 3 7.77 Figure 1 Fig * 00° ŧ 001 951 K 1E0. 34343454 3131 • ववा * 1. . 1 i * . š The section of the Control ----

DATE: 2 July 1963	CONVERSION FACTOR: 2.2
FLIGHT #: 6	PAPER: Kromekote, white
SAMPLE LINE: C	MATERIAL: 2 Fuel Oil, 1 Purple
FLOW RATE: 60 GPM	SYSTEM: HIDAL

STA,	DROP #	SIZE	STA,	DROP #	SIZE
24	1	5000			
29	6	4100*			
29	3	4000			
27	7	3900			
29	2	3800	34	1 100 (st	mallest)
29	5	3700			
29	4	3600			
29	8	3500			
24	9	3400			
29	10	3300			

$$\frac{\text{MMD} = \frac{67.72 + 0.1420 (\text{spot D Max})}{\text{Con. Factor} = 2.2} = \frac{4100}{6.355 \times 2.2} = \frac{295.3 \text{ Microns}}{6.355 \times 2.2}$$

Max. Sph. Dia. =
$$67.72+0.1420(5000) = \frac{5000}{6.430} = 777.6$$
 Microns

Min. Sph. Dia. = 63 Microns

MATERIAL: 2 Fuel Oi	1, 1 Pur	ole	FLOW	RATE:	6 0	GPM
DATE: 2 July	1963		SYSTE	ZM:	HIDAL	
FLIGHT #:	6		AIRSI	PEED:	55	Knots
SAMPLE LINE: C			ALTI	TUDE:	75	Feet
TIME OF RELEASE:	0520	Hours	AIRCE	AFT COUR	SE: 360	Degrees
DURATION: 0	8	Sec.				
STATION G.P.A.	STATION	_G,P,A	STATION	G.P.A.	_ STATION	G.P.A.
Stations 1 - 23 Blan	25 26 27 28 29 30 31 32 33 34 35 36 37	1.5 0.7 0.8 1.0 1.0 0.9 0.9 0.7 0.4 0.4	Blank			

Total 10.7

MATERIAL: 2 Fuel Oil, 1 Purple				FLOW RATE:		·:	60	GPM
DATE: 2	July 1	963		SYST	EM:		HIDAL	
FLIGHT #:	6			AIRS	PEED:		55	Knots
SAMPLE LINE:	c			ALTI	TUDE:		75	Feet
TIME OF RELEASE:		0520	Hours	AIRC	RAFT	COURSE	360	Degrees
DURATION:	08		Sec.					
STATION G.P.A.	s	TATION	G.P.A.	STATION	G.P	· A .	STATION	G.P.A.
Stations 1 - 23	Blank	25 26 27 28 29 30 31	1.5 0.7 0.8 1.0 1.0 0.9 0.9 0.7 0.4 0.4 0.5	-				
	S		38 - 1 90	Blank				

2 1 22.4 20 95 24.7 24.2 95 24.7 24.2 13 23.0 27.1 92 23.4 27 19. 2 3 dy 1961 6 0 1 3 150 13.0 15.0 100 13.1 17. 1 · 2 JUL 1963 Pilght 6
Files 1340
Fi EK 50. 100 q <u>;</u>*, 4 - 8 a B 42 8 8 42 to the second expression F-3-5-4-8-5-4-4-4

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DATE: 2 July 19	63	CONVERSION FACTOR: 2.2
FLIGHT #:	7	PAPER: Kromekote, white
SAMPLE LINE:	<u>c</u>	MATERIAL: 2 Fuel Oil, 1 Purple
FLOG RATE:	RA APM	SYSTEM: HIDAI

STA.	DROP #	SIZE	STA.	DROP #	SIZE
77	1	5100*			<u>-</u>
77	2	5000			
77	5	4900			
77	3	4 8 00			
77	4	4700	83	1	100 (smallest)
77	6	4600			
75	9	45 00			
77	8	4400			
77	7	4300			
77	10	4100			

$$MMD = \frac{67.72 + 0.1420 (\text{spot D Max})}{\text{Con. Factor} = 2.2} = \frac{5100}{6.355 \times 2.2} = 359.9 \text{ Microns}$$

Max. Sph. Dia. =
$$67.72 \pm 0.1420(5100) = \frac{5100}{6.430} = 791.8$$
 Microns

Min. Sph. Dia. = 63 Microns

12,15K 215.			FLOW RATE:		- 02.14
DATE: 2 Ju	ly 1963		SYSTEM:	HIDAL	
FLIGHT #:	7		AIRSPEED:	75	Knots
SAMPLE LINE:	<u> </u>		ALTITUDE:	75	Feet
TIME OF RELEASE:	0539	Hour	AIRCRAFT COURS	E: 360	Degrees
DURATION:	08	Sec.			
STATION G.P.A.	STATION	G.P.A.	STATION G.P.A.	STATION	G.P.A.
Stations 1 - 71 Bla	ink				0.3
					1.5
					0.9
				76	0.5
					1.4
					2.3
					2.2
					1.1
				81	0.5
					0.6
					0.5
				-	0.2 s 85 - 1 00
				Stations	Blank

DATE: 2 Jul	y 1963		CONVERSION FACTOR: 2.2 -
flight #:	8		PAPER: Kromekote, white
SAMPLE LINE:	c		MATERIAL: 2 Fuel Oil, 1 Purple
FLOW RATE:	80	GPM	SYSTEM: HIDAL

STA,	DROP #	SIZE	STA,	DROP #	SIZE
28	2	50 00			
28	3	4900			
24	1	480 0			
27	6	46 00			
27	4	4200*			
24	11	4100	28	1	100 (smallest)
25	8	4000			,
25	7	3900			
25	10	3800			
27	5	37 00			
24	12	36 00			
24	9	3 5 00			
27	13	3400			

$$\frac{\text{MMD} = \frac{67,72+0.1420(\text{Spot D Max})}{\text{Con. Factor - 2.2}} = \frac{4200}{6.355 \times 2.2} = 301.8 \text{ Microns}$$

Max. Sph. Dia. =
$$67.72+0.1420(5000) = \frac{5000}{6.430} = 777.6$$
 Microns

MATERIAL: 2 Fuel Oil, 1 Purple			FLOW	RATE:	8 0	GP1
DATE: 2 Jul	y 1963		SYSTE	M:	HIDAL	·
FLIGHT #: 8	. — .—		AIRSP	RED:	75	Knots
SAMPLE LINE: C			ALTII	TDE:	75	Feet
TIME OF RELEASE:	0540	Hours	AIRCR	AFT COURS	E:360	Degrees
DURATION: 0	7	Sec.				
STATION G.P.A.	STATION	G.P.A.	STATION	G.P.A.	STATION	G.P.A.
Stations 1 - 21 Blan	23 24 25 26 27 28 29 30 31 32 33	3.1 1.6 0.8 0.5 1.4 1.1 0.5 0.8 0.7	Blank			

Total 10.2

DATE: 2 July 1963	CONVERSION FACTOR: 2.2
FLIGHT #: 9	PAPER: Kromekote, white
SAMPLE LINE: D	MATERIAL: 2 Fuel Oil, 1 Purple
PLOW RATE: 80GPM	SYSTEM: HIDAL

STA.	DROP #	SIZE	STA.	DROP #	_SIZE
24	1	5900			
24	2	5500*			
24	4	5 300			
24	5	5200			
24	3	5000			
24	6	4900			
24	8	4800	4	1	100(smallest)
24	7	4700			
24	10	4600			
24	11	4500			
24	9	4400			
			_		

HeD =
$$\frac{67.72+0.1420 \text{ (Spot D Max)}}{\text{Con. Factor = 2.2}} = \frac{5500}{6.523 \times 2.2} = 383.3 \text{ Microns}$$

Max. Sph. Dia. =
$$67.72+-.1420(5900) = \frac{5900}{6.558} = 899.7$$
 Microns

MATER IAL	: 2 Fuel 0	il, l Purr	ole	FL	OW RAT	E:	80	GPM
DATE:	2 Jul	, 1963		SY	STEM:_	HID	AL	
FLIGHT #	:9			AI	RSPEED	:7	5	Knots
SAMPLE L	INE: D			A L	TITUDE	:	100	Feet
TIME OF	RELEASE:	0559	Hours	AI	RCRAFT	COURSE:	045	Degrees
DURATION	:	08	Secs.					
	G.P.A.		G.P.A.	STATI	ON G.	P.A.	STATION	G.P.A.
Stations	1 - 7 Blani	ζ.						
9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24	0.5 0.5 0.3 0.6 1.0 0.7 1.3 1.5 1.5 1.1 1.1	Stations	26 - 100	Blank				

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	and the physical property of the physical physic			00 00 00 00 00 00 00 00 00 00 00 00 00

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DATE: 2 10	19 1963	CONVERSION FACTOR: 2.2
FLIGHT #:	10	PAPER: Kromekote, white
	D	MATERIAL: 2 Fuel Oil, 1 Purple
FLOW RATE:	80 GPH	SYSTEM: HIDAL

STA.	DROP #	SIZE	STA.	DROP #	SIZE
75	1	5200			
75	2	4600			
75	3	4200 *			
75	4	4100			
75	5	4000			
75	6	3900			
75	7	3800	51	1	100 (smallest)
75	10	3700			
75	9	3600			
75	8	3 5 00			
75	11	3400			

$$\frac{\text{MMD=}}{\text{Con. Factor = 2.2}} = \frac{67.72 + 0.1420 (\text{Spot D Max})}{6.325 \times 2.2} = 301.8 \text{ Microns}$$

Max. Sph. Dis. =
$$67.72+0.1420(5200) = 5200 = 800.9$$
 Microns 6.493

MATERIAL: 2 Fuel Oil, 1 Purple	FLOW RATE	:8 <u>)</u>	GPM
DATE: 2 July 1963	SYSTEM:_	HIDAL	
FLIGHT #: 10	AIRSPEED:	75	Knots
SAMPLE LINE: D	ALTITUDE:	100	Feet
TIME OF RELEASE: 0600 Hours	AIRCRAFT	course: 04	45 Degrees
DURATION: 08 Sec.			
STATION G.P.A. STATION G.P.A.	STATION G.	A. STA	rion g.p.a.
Stations 1 - 54 Blank	55 0.3 56 0.1		
	57 0.3		
	58 0.3		
	59 0.3		
	60 0.3		
	61 0.4		
	62 0.5		
	63 0.5		
	64 0.5		
	65 0.7		
	66 1.1	-	
	67 1.3		
	68 1.0		
	69 1.5		
	70 1.1		
	71 1.5)	
	72 0.7	1	
	73 1.3	}	
	74 0.7		
	75 1.0		
	76 J.1		
	Stations 77	- 155 Blank	

Total <u>15.0</u>

1

.

DATE: 2 July	1963	CONVERSION FACTOR: 2,2
FLIGHT NO:	11	PAPER: Kromekote, white
SAMPLE LINE:	C	MATERIAL: 2 Fuel Oil, 1 Purple
FLOW RATE:	80 GPM	SYSTEM: HIDAL

STA,	DROP #	SIZE	STA.	DROP #	SIZE
72	3	5400			
74	1	4300*			
73	7	4200			
74	2	4100			
72	5	4000	73	1	100 (smallest)
73	6	3900			
72	4	3800			
7 3	8	3700			
71	10	3600			
73	9	3500			

$$\frac{\text{MMD} = \frac{67.72 + 0.1420 (\text{Spot D Max})}{\text{Con. Factor} = 2.2} = \frac{4300}{6.355 \times 2.2} = 308.2 \text{ Microns}$$

Max. Sph. Dia. =
$$67.72+0.1420(5400) = \frac{5400}{6.430} = 829.1 \text{ Microns}$$

MATERIAL: 2 Fuel Oil, 1 Purple	FLOW RATE:	8 0	GPM
DATE: 2 July 1963	SYSTEM: HID.	AL	· · · · · · · · · · · · · · · · · · ·
FLIGHT #: 11	AIRSPEED:	75	Knots
CANFLE LINE:	ALTITUDE.	<u> ب ر</u>	الم الم
TIME OF RELEASE: 0618 Hours	AIRCRAFT COURSE:	360	Degrees
DURATION: 08 Sec.			
STATION G.P.A. STATION G.P.A.		STATION	_G.P.A.
Stations 1 - 66 Blank	67 0.4 68 1.3 69 0.4 70 1.6 71 1.4 72 1.5 73 0.7 74 0.8 75 0.7 76 2.8 77 1.8 78 0.5 79 0.2		

DATE: 2 July 1963	CONVERSION FACTOR: 2.2
FLIGHT #: 12	PAPER: Kromekote, white
SAMPLE LINE: C	MATERIAL: 2 Fuel Oil, 1 Purple
FLOW RATE: 80 GPM	SYSTEM: HIDAL

STA.	DROP #	SIZE	STA,	DROP #	SIZE
21	<u> </u>	4400			
25	4	3700*			
23	2	3600			
20	6	35 00			
24	9	3400	24	1	100 (smallest)
2 2	5	3300			·
23	3	320 0			
20	8	3100			
20	7	3000			
24	11	29 00			
24	10	2800			

MMD =
$$\frac{67.72 + 0.1420 \text{ (Spot D Max)}}{\text{Con. Factor}} = \frac{3700}{6.355 \times 2.2} = \frac{269.5 \text{ Microns}}{6.355 \times 2.2}$$

Max. Sph. Dia. =
$$67.72+0.1420(4400) = \frac{4400}{6.430} = 692.4$$
 Microns

MATFRIAL: 2 Fuel	ple	FLOW	RATE:	<u>90</u>	GPM	
DATE: 2 Ju	ly 1963		SYSTE	M:	HIDAL	
FLIGHT #: 12			AIRSP	EED:	75	Knots
uthi ii illist	<u>c</u>		ALTIT	UDE:	50	Feet
TIME OF RELEASE:	0619	Hours	AIRCR	AFT COU	RSE: 360	Degrees
DURATION:	07	Sec.				
STATION G.P.A.	STATION	G.P.A.	STATION	G.P.A.	STATIO	N G.P.A.
Stations 1 - 16 Bl	17 18 19 20 21 22 23 24 25 26 27 28 29	1.0 1.4 1.0 0.4 0.3 0.3 0.7 2.5 1.0				
		ა.ა 3 0 - 100 B	lank			

% Recovery - 42.7

Iotal <u>l....</u>

2 JUL 1963 PLAID HELL 15. 15.3 12.1 81. 100. 24.1 34.5 81. 150. 24.1 34.5 82. 150. 24.1 34.5 82. 150. 24.1 34.5 82. 150. 24.1 34.5 82.	8 18 2 300 2 3 300 2 3 3 3 3 3 3 3 3 3 3 3 3		7700 1000 1000
	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		100 May 100 Ma
	T COT		100 100 100 100 100 100 100 100 100 100
			000 000 000 000 000 000 000 000 000 00
			1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1
	 E TO THE		, j

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H-34/HIDAL GROUND FLOW & FLIGHT DATA

DATE CALIBRATED: 1 July 1963	DATE TEST FLOWN:	5 July 1963	
LIQUID SPRAYED: 2 Fuel 011, 1 Purple	TOTAL HOZZLES OPEN:_	60	
MOZZLE TYPE: 8015	LIQUID TEG:		
DURATION OF SPRAY: 30 Sec.	PUNP PRESSURE:	32	PS
TOTAL AMOUNT SPRAYED: 38,5 Gal.	BOON PRESSURE:	30	PS 1
	PICH PATE CALLEDATED	77 0	C PA

OPERATIONAL DATA DURING FLIGHT

Above information same for Runs 1 - 8.

MATERIAL: 2 Fuel Oil, 1 Purple	FLOW RATE:	77.0	GPM
PATE: 5 July 1963	System: hid	AL	
FLIGHT #: 1	AIRSPEED:	55	Knots
CAMBLE C	ALTITUDE:	100	Feet
TIME OF RELEASE: 0439 Hours	AIRCRAFT COURSE	:360	Degrees
DURATION: 08 Sec.			
STATION G.P.A. STATION G.P.A. Stations 1 - 9 Blank	STATION G.P.A.	STATION	G.P.A.
Stations I - / Diam			
10 0.3			
11 0.2 12 0.2			
13 0.5 14 0.9			
15 1.6 16 2.3			
17 2.7 18 2.6			
19 1.9			
20 1.9 21 1.1			
22 1.7 23 2.3			
24 1.3 Stations 25 - 150 Blank			

Tipe of the state Mitted Mingel Mingel Owen 1001 <u>;</u>\$, 5 2 3 8 9 € g 4= - × toward distance

DATE: 5 July 1963	CONVERSION FACTOR: 2.2
FLIGHT #: 2	PAPER: Kromekote, white
SAMPLE LINE: C	MATERIAL: 2 Fuel Oil, 1 Purple
FLOW RATE: 77.0 GPM	SYSTEM: HIDAL

STA.	DROP #	SIZE	STA.	DROP #	SIZE
75	1	5200*			
75	3	5100			
75	2	5000			
75	6	4800	62	1A	100
75	5	4700			
75	4	4600			
75	7	4400			
75	8	4300			
75	9	4200			
75	10	4100			

$$\frac{\text{MMD}}{\text{Con. Factor}} = \frac{67.72 + 0.1420 (\text{Spot D Max})}{\text{Con. Factor}} = \frac{5200}{6.355 \times 2.2} = 364.0 \text{ Microns}$$

Max. Sph. Dia. =
$$67.72 + 0.1420(5200) = \frac{5200}{6.430} = 800.9$$
 Microns

MATERIAL: 2 Fuel Cil, 1 Purple	<u></u>	FLOW	RATE:	77.0	GPM
DATE: 5 July 1963		SYSTE	н :н	IDAL	
FLIGHT #: 2		AIRSP	EED:	55	Knots
SAMPLE LINE: C		ALTIT	: 3 du	100	Feet
TIME OF RELEASE: 0441	Hours	AIRCR	AFT COURS	B: <u>360</u>	Degrees
DURATION: 10	Sec.				
STATION G.P.A. STATION C	G.P.A.	STATION	G.P.A.	STATION	G.P.A.
Stations 1 - 58 Blank		59			
		60			
		61			
		62			
		63			
		64 65			
		65 66			
		67	•		
		68			
		69			
		70			
			1.2		
		72	-		
		73	1.0		
		74	4.3		
		75	0.6		
		76	0.2		
		Stations	77 - 100	Blank	

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MATERIAL: 2 Fuel:	011, 1 Purp	<u>le</u>	FLOW	RATE:	77.0	GPN
DAIE: 5 J	uly 1963		SYSTE	M: <u>H</u>	IDAL	
FLIGHT #: 3			AIRSP	EED:	55	Knots
SAMPLE LINE:	В		ALTII	UDE:	75	Feet
TIME OF RELEASE:	0500	Hour	AIRCR	AFT COUR	SE: 315	Degrees
DURATION:	18	Sec.				
STATION G.P.A.			STATION	G.P.A.	STATION	G.P.A.
Stations 1 - 17 Bl	ank 18	0.0				
	19					
		0.4				
		0.5				
		1.9				
		3.1				
	24					
	25					
	26					
	27					
		2.9				
	29					
		3.1				
		3.5				
		0.7				
	33					
	34					
	5 د					
	3 6					
	Stations	37 - 1	00 Blank			

% Recovery - 89.8

Total <u>28.1</u>

5 to 19 1943 150 24 5 MLs 200 24 6 223 100 243 Military of Milita 7 9,0, Į 3 ğ 8 r, 8 g F121 ME 2M H M 1 1999C = -

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DATE: 5 July 1963	CONVERSION FACTOR: 2.2
FLIGHT #: 4	PAPER: Kromekote, white
SAMPLE LINE: B	MATERIAL: 2 Fuel Oil, 1 Purple
PIOU PATE: 77 0 CEM	SYSTEM: HIDAL

STA.	DROP #	STZF	STA	שַׁטְסָת מַ	5170
78	5	4300*			
79	2	4100			
78	4	4000			
79	3	3900			
79	1	3800	82	1A	100
78	6	3700			
75	7	3500			
79	9	3400			
79	10	3300			
78	8	3 200			

MMD =
$$\frac{67.72+0.1420 \text{ (Spot D Max)}}{\text{Con. Factor = 2.2}} = \frac{4300}{6.355 \times 2.2} = 308.2 \text{ Microns}$$

Max. Sph. Dia. =
$$67.72+0.1420(4300) = \frac{4300}{6.430} = 678.2$$
 Microns

MATERIAL: 2 Fuel	0il, 1 Pu	rple	FLOW	RATE:	77.0	GP M
DATE: 5 J	July 1963		SYST	SH:	HIDAL	
FLIGHT : 4			A IRS	PBED:	55	Knots
SAMPLE LINE:	В	·	ALTI	TUDE:	75	Feet
TIME OF KELBASE:	95 02	Hours	AIRC	RAFT COURS	E: 315	Degrees
DURATION:	11	Sec.				
STATION G.P.A.	STATION	CPA	STATION	СРА	STATION	G P A
Stations 1 - 71 B1	.ank					
			72	0.1		
			73	3.6		
				2.2 1.7		
			76	0.9		
			77 78	0.9 1.5 1.5		
			79	1.5		
			80 81	2.4		
			82	0.2		
			83	0.0		

7 Recovery - 52.1

Stations 84 - 100 Blank

Total <u>13.3</u>

100 24.3 Man Main 5 Mir 1963 100 246 223 [9] 7.57 24.5 Marie A 50 à 150. 1-1-0 3 ÷, 11 ğ 8 8 8 4= 8 ž 3 2 2 2

MATERIAL: 2	Fuel 011, 1 P	urple	FLOW :	RATE	:: <u> </u>	7.0	CIPM CIPM
DATE:	5 July 1963		SYSTE	X:	HIDA	<u>L</u>	
FLIGHT #:	5		AIRSP	EED :	75		Knot
SAMPLE LIME:	В		ALTIT	VDE:	1	00	Fee
IDE OF RELEASE:	9520	HOUE 8	A IRCR	AFT	CONR.SE:_	315	Degree
DURATION:	08	Sec.					
STATION G.P.A.	STATION	G.P.A.	STATION	Ģ.P	·.A.	STATION	G.P.A.
Stations 1 - 20		• -					
	22						
	23						
		1.4				•	
	25						
	26	- • -					
	2.7						
	28	•					
	29						
	39						
	31						
	32						
	33	0.5					
	Stations	34 - 100	Blank				

% Recovery - 58.3

Total 13.4

.

DATE: 5 Ju	ly 1963		CONVERSION FACTOR: 2.2
FLIGHT #:	6		PAPER: Kromekote, white
SAMPLE LINE:	В		MATERIAL: 2 Fuel 011, 1 Purple
FLOW RATE:	77.0	GPM	SYSTEM: HIDAL

STA.	DKOP #	SIZE	STA,	DROP #	SIZE
78	i	3700			
78	2	3200*			
77	3	3100			
78	5	3000	77	1A	100
78	7	2900			
77	4	2800			
78	6	2700			
78	8	2600			
78	9	2500			
78	10	2400			

$$\frac{\text{MMD}}{\text{Con. Factor} = 2.2} = \frac{67.72 + 0.1420 (\text{Spot D Max})}{6.355 \times 2.2} = 237.3 \text{ Microns}$$

Max. Sph. Dia. =
$$67.72+0.1420(3700) = \frac{3700}{6.430} = 593.0$$
 Microns

MATERIAL: 2 Fuel Oil, 1 Purple	FLOW RATE: 77	.0 GPM
DATE: 5 July 1963	SYSTEM: HIDA	L
FLIGHT #:6	AIRSPEED:	75 Knot s
SAMPLE LINE: B	ALTITUDE:	100 Feet
TIME OF RELEASE: 0521 Hours	AIRGRAFI COURSE:	315 Degrees
DURATION: 10 Sec.		
STATION G.P.A. STATION G.P.A.	STATION G.P.A.	STATION G.P.A.
Stations 1 - 72 Blank		
	73 0.8	
	74 2.2 75 1.5	
	76 0.8 77 1.0	
	78 1.0	
	79 1.1 80 1.2	
	81 1.2	
	82 0.6 83 0.5	
	84 73	
	85 0.5 Stations 86 - 100 B	1 mle

MASS ' IDIAN DIAMETER

DATE: 5	July 1963		CONVERSION FACTOR: 2,2
FLIGHT #:	7		PAPER: Kromekote, white
SAMPLE LINE:	С		MATERIAL: 2 Fuel Oil, 1 Purple
FLOW RATE:	77.0	GPH.	SYSTEM: HIDAL

SIA.	DROB A	5145	SĨA.	DROP +	عَيْدَة
25	1	3000*			
25	2	2900			
17	3	2800			
18	4	2700			
25	6	2600	18	1A	100(smallest)
18	5	2500			
25	8	2400			
18	7	2300			
15	9	2200			
15	10	2100			

$$\frac{\text{MMD} = \frac{67.72 + 0.1420 \text{ (Spot D Max)}}{\text{Con. Factor} = 2.2} = \frac{3000}{6.355 \times 2.2} = 224.4 \text{ Microns}$$

Max. Sph. Dia. =
$$67.72+0.1420(3000) = \frac{3000}{6.430} = 493.7$$
 Microns

MANERIAL: 2 Fuel Oil, 1 Purple	FLOW RATE: 77.0	GPM
DATE. 5 July 1963	SYSTEM: HIDAL	
FLIGHT #:7	AIRSPEED: 15	Knots
SAMPLE LINE: C	ALTITUDE: 75	Feet
TIME OF KELEASE: U630 HOUTS	AIRCRAFT COURSE: 360	Degrees
DURATION: 09 Sec.		
STATION G.P.A. STATION G.P.A.	STATION G.P.A. STATION	G.P.A.
Stations 1 - 10 Blank		
11 0.0		
12 0.2 13 0.4		
14 0.3 15 0.4		
16 3.4		
18 0.4		
19 20 3.7		
21 0.8		
22 0,7 23 0,2		
24 3.3		
25 0.7 Stations U6 - 100 Blank		

% Recovery - 27.8

Total <u>6.-</u>

24.0 445. 445. 445. 445. 445. 445. 445. 4	2
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	1000 to 1000 t
	8
	\$ 3 A
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MATERIAL: 2 Fuel Oil, 1 Purple	FLOW RATE:	77.0	GPH
DATE: 5 July 1963	SYSTEM:	HIDAL	
FLIGHT #: 8	AIRSPEED:	75	Knots
SAMPLE LINE C	ALTITUDE:	75	Feet
TIME OF RELEASE: 0632 Hours	AIRCRAFT COM	RSB: 360	Degrees
DURATION: 12 Sec.			
STATION G,P,A, STATION G,P,A,	STATION G.P.A.	STATION	G.P.A.
Stations 1 - 65 Blank			
	66 0.1		
	67 0.4		
	68 0.7 69 0.8		
	70 0.4		
	71 0 3		
	72 0.2 73 0.2		
	74 0.4		
	75 0.3		
	76 0.3		
	77 0.1 78 0.0		
	Stations 79 - 1	00 Blank	

% Recovery - 18.3

Total <u>4.2</u>

Mark Mise 34 5 21 0 24 0 Mas. 3.25 0.35 20. 7.25 0.35 20. 7.25 0.35 20. 26 0 Mag. 3 1 Title (3 .00 Attitudo Mrspand Mrsrade Omesa Tido of Iniones K 2 # E SE ģ 0,4, .0/ B 8 -5 3 R 101 M 10 M 70 100C



H-34/HIDAI GROUND FLOW & FITCHT BATA

DATE CALIBRATED:	6 July 196	3	DATE TEST FLOWN:	7 July	1963
LIQUID SPRAYED: 2 F	uel 011, 1	Purple	TOTAL MOZZLES OPE	M: 60	
WEZZLE TYPE:	8010		LIQUID TERE:	39° C	
DURATION OF SPRAY:_	30	Sec.	BOOM PRESSURE:	54-55	PSI
TOTAL AMOUNT SPRAYE	B: 35.5	Gal.	FLOW RATE CALLERAY	TED: 71	GPN

OPERATIONAL BATA BURING FLIGHT

Above information same for Rums 1 - 6.

DATE CALIBRATED: 6 July 1963	DATE TEST FLORIS: 7 July 1963				
LIQUID SPRAYED: 2 Fuel 011, 1 Purple	TOTAL MOZZLES OPEN: 60				
NOZZLE TYPE: 8015	LIQUID TEMP: 33.5° C				
DURATION OF SFRAY: 30 Sec.	PUMP PRESSURE: 38-28 PSI				
TOTAL AMOUNT SPRAYED: 39.5 Gal.	FLOW RATE CALIBRATED: 80 GPH				

OPERATIONAL DATA DURING FLIGHT

Above information same for Runs 7 - 16.

REMARKS: Pump cavitating after 20 seconds due to low level of liquid in tanks on run #16.

DATE: 7 July 1963	CONVERSION FACTOR: 2.2
FLIGHT NO.: 1	PAPER: Kromekote, white
SAMPLE LINE:	MATERIAL: 2 Fuel Oil, 1 Purple
FLOW RATE: 71.0 GPM	SYSTEM: HIDAL

STA.	DROP #	SIZE	STA.	DROP #	SIZE
72	1	3900			
70	2	3100*			
72	6	3000			
72	5	2900			
72	8	2800	7 0	1 A	100 (smallest)
70	3	2700			
70	4	26 00			
72	7	2500			
70	10	2400			
7 0	9	23 00			

$$\frac{\text{MMD}}{\text{Con. Factor} = 2.2} = \frac{67.72 + 0.1420 \text{ (Spot D Max)}}{6.355 \times 2.2} = 230.8 \text{ Microns}$$

Max. Sph. Dia. =
$$67.72+0.1420(3900) = \frac{3900}{6.430} = 621.4 \text{ Microns}$$

Min. Sph. Dia. = 63 Microns

MATERIAL: 2 Fuel Cil 1 Purple	FLOW RATE:	71	GP1
DATE: 7 July 1963	SYSTEM:	HIDAL	
FLIGHT #: 1	AIRSPEED:	75	Knot
SAMPLE LINE: A	ALTITUDE:	100	Feet
TIME OF RELEASE: U413 Hours	AIRCRAFT (COURSE:	270 Degrees
DURATION:			
STATION G.P.A. STATION G.P.A. Stations 1 - 63 Blank	STATION G.P.	. A. §1	TATION G.P.A.

64 0.3 65 0.2 66 0.7 67 0.7 68 0.9 69 0.9 70 0.7 71 0.9 72 1.1 73 0.7 74 0.8 75 1.1 76 1.3 77 0.3 Sissions 78 - 100 Elank

% Recovery - 52.0

Total 10.6

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MATERIAL: 2 Fo	E1 011 1 P.	i i i i i i i i i i i i i i i i i i i	FLUW RAIL.		988.
DATE 7 J	ulw 1963		SYSTEM	HIDAL	
FLIGHT #:	2		ALTITUDE:	100	Feet
SAMPLE LINE			AIRSPEED:	75	Knot 9
TIME OF RELEASE:	041_	Hours	AIRCRAFT C	OURSE: 270	Degrees
DURATION:	0ê	Sec.			
STATION G.P.A.	STALIO	C.F.A.	STACLON G.P.	A. STATION	G.P.A.
Stations 1 - 16	Elenk				
17 0.5					
18 0.3 19 0.3					
20 0.3					
22 0.3					
24 0.1 25 0.8					
26 O.f					
27 0.4 Stations 28 - 108	O álank				

Recovery - 23,0

15. 13.1 13.2 91 100 181 125.3 91 29.4 93 20.0 0.65 4.65 0.25 05 7 JUL 1963 1 2.65 45. 25.0 Attract
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DATE:	7 July 1963		CONVERSION FACTOR: 2,2	•
FLIGHT #:	3		PAPER: Kromekote, white	
SAMPLE LI	NE: A		MATERIAL: 2 Fuel Oil, 1 Furple	•
FING RATE	71.0	CPM	SYSTEM: HIDAL .	

STA.	DROP #	SIZE	STA.	DROP #	SIZE
70	3	3200*			
72	1	3100			
72	2	3000			
69	4	2900			
74	5	2800	73	1A	100 (smallest)
71	7	2700			
70	6	26 00			
74	8	2500			
72	9	2400			
70	10	2300			

$$\frac{1200}{\text{Con. Factor} = 2.2} = \frac{67.72 + 0.1420 (\text{Spot D Max})}{6.355 \times 2.2} = \frac{3200}{6.355 \times 2.2} = 237.3 \text{ Microns}$$

Max. Sph. Dia. =
$$67.72+0.1420(3200) = \frac{3200}{6.430} = 522.1$$
 Microns

Min. Sph. Dia. = 63 Microns

: 1

MATERIAL: 2 Fuel Oil, 1 Purple	FLOW RATE: 8 71 G					
DATE: 7 July 1963	SYSTEM: HIDAL					
FLIGHT #: 3	AIRSPEED:	55	Knot			
SAMPLE LINE: A	ALTITUDE:	75	Feet			
TIME OF RELEASE: 0435 Hours	AIRCRAFT COU	RSE: 270	Degrees			
DURATION: 13.5 Sec.						
STATION G.P.A. STATION G.P.A. Stations 1 - 65 Blank	STATION G.P.A.	STATION	G.P.A.			
	66 0.0 67 0.1 68 0.6 69 1.1 70 1.0 71 1.1 72 1.1 73 0.8 74 0.6					
	75 1.0 76 1.0 77 1.8 78 2.9 79 0.1					
	80 0.0 Stations 81 - 1	00 Blank				

110 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	The state of the s	Married Spread 1 Paul (1), 1 Nayle, 1 Married		
	11 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0			
			05, 05, 07, 07, 07, 07, 07, 07, 07, 07, 07, 07	
	2 - 2		3	

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MATER IAL	:	2_F	uel Oil	1 Pur	ple	FLOW RA	TE:		71	GPM
DATE:		7,	July 196	3		SYSTEM:		HIDA	L	
FLIGHT #	:	4				AIRSPEE	D:	5	<u></u>	Knots
SAMPLE L	INE:_					ALTITUD	ž:	75		<u> </u>
TIME OF	RELEA	SE:_	0437	Но	ur s	AIRCRAF	T COM	RSE:_	270	Degrees
DURATION	:		12.5	8	ec,					
STATION	G.P.	Α,	STAT	TION G	.P.A.	 STATION G	.P.A.		STATION	G.P.A.
Stations	1 -	11 B	lank							
12	0.0									
13 14 15	0.1									
15	0.1									
16	0.4									
17	0.4									
18										
19										
20	0.8									
21	1.0									
23	1.0									
22 23 24	2.0									
25	1.0									
26										
27										
28										
29										
Stations	30 -	100	Blank							

Inches, 71 cm 27 Res 644, 3 Perpla, 27 Res 77 Res 73 Res 6 278 Res 6 10.0 ž 12.0 15.1 3.5.0 0.51 001 7 JUL 1963 37.8 Files Fried Free Alexand Married Brown Alexand Common Alexand Common Free of Delease Ē Ŋ • 30. Ā 1:11 1 0,0 ŧ 8 . 3 ş - = 8 4× ğ 8

DATE:7_3	uly 1963		CONVERSION FAC	ror: 2.2
FLIGHT #:	5		PAPER: Krom	skote, white
SAMPLE LINE:			MATERIAL: 2 Fu	al Oil, l Purple
FLOW RATE:	71.0	GIFM	SYSTEM:	HTDAT.

STA.	DROP #	SIZE	STA.	DROP #	514E
27	2	4600			
22	1	3800			
24	4	3200*			
27	5	3100			
24	3	300 0	27	1A	100 (smallest)
2 7	7	2900			,
27	6	2800			
27	9	270 0			
27	10	26 00			
27	8	25 00			

$$\frac{\text{MMD}}{\text{Con. Factor} = 2.2} = \frac{67.72 + 0.1420 \text{ (Spot D Max)}}{6.355 \times 2.2} = 237.3 \text{ Microns}$$

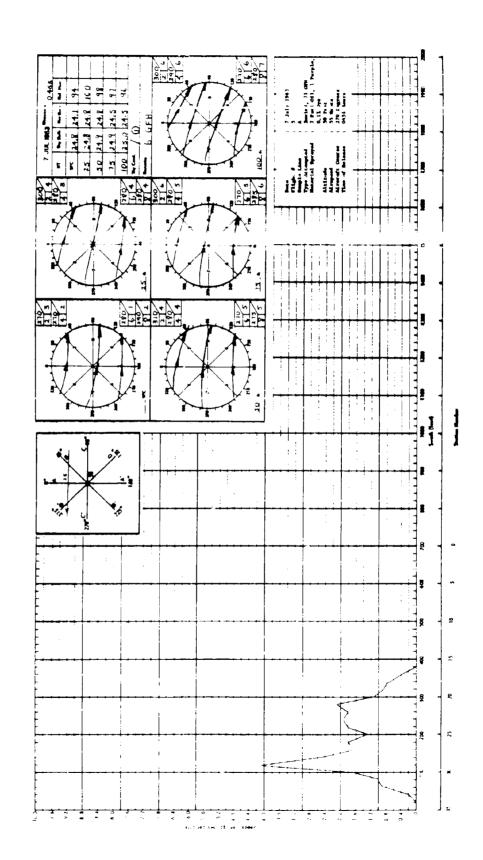
Max. Sph. Dia. =
$$67.72+0.1420(4600) = \frac{4600}{6.430} = 720.8 \text{ Microns}$$

Min. Sph. Dia. = 63 Microns

MATERIAL: 2 Fue	1 0il, 1 Purp	<u>le</u>	FLOW RATE:	71	GPM
DATE:	7_July 1963		SYSTEM:	HIDAL	
FLIGHT #:	5		AIRSPEED:	55	Knots
SAMPLE LINE:	Α		ALTITUDE:	50	Feet
TIME OF RELEASE:	0456	Hours	AIRCRAFT COURSE:	270	Degrees
DURATION:	13	Sec.			
STATION G.P.A.	STATION	G,P.A.	STATION G.P.A.	STATION	G,P,A,
Stations 1 - 10	Didia				
17 0.4 18 C.8					
19 0.9 20 1.1					
21 2.1 22 1.8					
23 1.9 24 1.8					
25 1.3					
26 1.8 27 1.7 28 2.5					
29 4.1					
30 1.7 31 1.0					
32 0.9					
33 0.2 Stations 34 - 10	O Blank				

% Recovery - 93.6

Total <u>26.0</u>



MATERIAL: 2 Fuel Oil, 1 Purple	FLOW 1	RATE:	71	GPM
DATE: 7 July 1963	SYSTE	K:	HIDAL	
FLIGHT #: 6	AIRSP	BBD:	55	Knots
SAMPLE LINE: A	ALTIT	UDE:	50	Feet
TIME OF RELEASE: 0457 Hours	AIRCR	AFT COURSE	:270	Degrees
DURATION: 10 Sec.				
STATION G.P.A. STATION G.P.A. Stations 1 - 68 Blank	STATION	G.P.A.	STATION	G.P.A.
	72 73 74 75 76 77 78	1.1 2.7 2.0 1.7 0.5 0.9 1.0 1.7		
	81 82 83	1.8 0.6 0.5	Blank	

% Recovery - 69.8

Total <u>19.4</u>

Zanf. d., 71 (201 2 Fer. 1 Off., 1 Partile, 0, 13 Pyr. 15 Kests 27) regress 0437 Sears 50 249 245 41 13 243 245 91 100 359 245 72 4 000 0 0 0 0 0 0 3.15 24.8 Para Filipe of Employing Army Type Arengon Marental Byrepon Alected Al 11.07 10.15 11.55 1 1 + اه زه ğ 8 8 ş 45 8 £ ∃ 3 The second second

MATERIAL: 2 Fuel Oil, 1 Furple	FLOW RATE:	80	GPM
DATE: 7 July 1963	System: Hil	MAL	
FLIGHT #: 7	AIRSPEED:	75	Knots
SAMPLE LINE: A	ALTITUDE:	75	Feet
TIME OF RELEASE: 0518 Ho	AIRCRAFT COURSE	: <u> </u>	Degrees
DURATION: 13 S	<u>•c.</u>		
STATION G.P.A. STATION G.	P.A. STATION G.P.A.	STATION	G.P.A.
Stations 1 - 71 Blank		72	0.0
		73	
		74	
		75	
		76	
		77	
		78 79	
		80	
		81	
		82	
		83	
		84	
		85	
		86	
		87	
		88	
		89	
			0.0
		Stations	91 - 10
			Blani

30 442 243 11 30 442 243 11 115 448 245 11 100 243 241 18 7 3 45 3143 Figure 6
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Figure 7
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DATE:	July 1963	<u></u>	CONVERSION	FACTOR: 2,2	
FLIGHT #:	8		PAPER: K	romekote, white	
SAMPLE LINE:_	A		MATERIAL: 2	Fuel Oil, 1 Purp	<u>le</u>
PIAU RATE	80.0	GPM	SYSTEM:	HIDAL	

1				
±	3760*	•		
3	3500			
2	3300			
4	3200			
5	3100	29	1A	100 (smallest)
6	3000			
7	2900			
8	2700			
9	26 00			
10	2500			
	2 4 5 6 7 8 9	2 3300 4 3200 5 3100 6 3000 7 2900 8 2700 9 2600	2 3300 4 3200 5 3100 29 6 3000 7 2900 8 2700 9 2600	2 3300 4 3200 5 3100 29 1A 6 3000 7 2900 8 2700 9 2600

$$\frac{\text{MMD}}{\text{Con. Factor} = 2.2} = \frac{67.72 + 0.1420 (\text{Spot D Max})}{6.355 \times 2.2} = \frac{3700}{6.355 \times 2.2} = 269.5 \text{ Microns}$$

Max. Sph. Dia. =
$$67.72+0.1420(3700) = \frac{3700}{6.430} = 593.0$$
 Microns

Min. Sph. Dia. = 63 Microns

MATERIAL: 2 Fuel	Oil, l Pur	ple	FLOW	RATE:	80	GPM
DATE: 7_J	uly 1963		SYSTE	M:	HIDAL	
FLIGHT #:	8		AIRSP	EED:	75	Knots
SAMPLE LINE:	<u>A</u>		ALTIT	TODE:	75	Feet
. (AV 1 (10 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	50%	Manne	(₹ D @B	מייטט שמי	ce	
DURATION:	9.5	Sec.				
STATION G.P.A.	STATION	G.P.A.	STATION	G.P.A.	STATION	G.P.A.
Stations 1 - 22 Bla	24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40	0.3 2.6 1.0 0.9 0.7 0.6 0.2 1.0 0.6 0.5 0.5 0.3 0.3 0.1	Blank			

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DATE:	7 July 196	53	CONVERSION FACTOR: 2.	2
FLIGHT #:	9		PAPER: Kromekote, white	
SAMPLE LINE:	: <u>^</u>		MATERIAL: 2 Fuel Oil, 1	Purple
FLOW RATE:_	80	GPH	SYSTEM: HIDAL	

STA.	DROP #	SIZE	STA.	DROP #	SIZE
75	3	4100*			_ _
75	1	390 0			
75	2	3800			
73	4	3700			
75	5	36 00	90	1A	100 (smallest)
75	9	3500			
76	10	3400			
75	6	3300			
75	8	3200			
75	7	3100			

$$\frac{\text{MPD}}{\text{Con. Factor}} = \frac{67,72+0.1420 (\text{Spot D Max})}{\text{Con. Factor}} = \frac{4100}{6.355 \times 2.2} = 295.3 \text{ Microns}$$

Max. Sph. Dia. =
$$67.72+0.14$$
 20 (4100) = $\frac{4100}{6.430}$ = 649.8 Microns

Min. Sph. Dia. = 63 Microns

MATERIAL: 2 Fuel	Oil, l Purpl	<u>e</u>	FLOW F	ATE:_	80)		GPM
DATE: 7 Ju	ly 1963		SYSTEM	1 :	HIDA	L		
FLIGHT #:	9		AIRSPI	ED:	5	5	<u>Kn</u>	ots
SAMPLE LINE:	Α		ALTIT	DE:	75		F	ee <u>t</u>
TIME OF RELEASE:_	0533	Hours	AIRCRA	AFT CO	URSE:_	270	Degr	e e 8
DURATION:	11	Sec.						
STATION G.P.A. Stations 1 - 73 B	STATION	G.P.A.	STATION	G.P.A	•	STATION 74	G.P.	<u> A.</u>
						80 82 83 84 85 86	1.8 1.2 1.6 1.5 1.8 0.8 1.2 0.9 0.8	
							0.6 0.5 0.1 0.2 0.1 0.1 0.0	
						Stations	97 -	10 lan

MATERIAL: 2 Fuel	Oil, 1 Purp	<u>le</u>	FLOW RATE:	80	GPN
DATE: 7	July 1963	,	SYSTEM:	HIDAL	
FLIGHT #:	10		AIRSPEED:	55	Knots
SAMPLE LINE:	Δ		ALTITUDE:	75	Feet
TIME OF RELEASE:	0535	Hours	AIRCRAFT COURSE	270	Degrees
OURATION:	13	Sec.			
STATION G.P.A.	STATION	G.P.A.	STATION G.P.A.	STATION	G.P.A.
Stations 1 - 23 E	lank 24	0.0			
	25				
	26				
	27				
	28				
	29	0.7			
	3 N 3 1	∩ R			
	32	1.1			
	33	1.1			
	34	1.0			
	35	0.3			
	36	1.0			
	37				
	38				
	39	0.5			
	40	0.4			
	41	0.3			
	42	0.1			
	43	0.1			
	44	0.1			
	45	0.0			
	Stations	46 - 100) Blank		

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MATERIAL: 2 Fuel Oil, 1	Purple	FLOW RAT	E:	BO CEM
DATE: 7 July 1963		System:_	HID	ır
FLIGHT #: 11		AIRSPEED	; <u>.</u>	55 Knots
SAMPLE LINE: B		ALTITUDE	:10	00 Feet
TIME OF RELEASE: 060	5 Hours	AIRCRAFT	COURSE:_	315 Degrees
DWRATION: 19	Sec.			
STATION G.P.A. STA	TION G.P.A	STATION G	.P.A.	STATION G.P.A.
Stations 1 - 23 Blank	24 0.0			
	25 0.9		•,	
	26 0.7		•	
	27 0.4			
	28 0.8			
	29 0.7			
	30 0.5			
	01 0.4			
	32 0.5			
	33 0.3			
	34 0.9			
	35 1.1			
	36 0.4			
	37 0.2			
	38 0.0			
	tions 39 -	100 Blank		

100 12-1 24.3 | 90 | 25 25.8 24.5 91 25 25.8 24.5 91 50 25.8 24.1 99. 7 July 19-3 7 JUL 1063 **** 1 35.R Fig. 6 Fig. 6 Fig. 6 Cong. 6 Fig. 6 Cong. 6 Fig. 6 Cong. 6 Fig. 7 Cong. 6 Fig. 7 Cong. 6 Fig. 7 Cong. 6 È - F F F 13.0 9,0 8 3 ŝ 욢 **∤**≍ A E • 0 • 1 • 0 • 3.4

DATE:	7 July 1963		CONVERSION FACTOR: 2.2
FLIGHT #	:12		PAPER: Kromekote, white
Sample i	INE: B		MATERIAL: 2 Fuel Oil, 1 Purple
P1 041 DAT	m. e∧	COMMAND OF THE PERSON OF THE P	CUCTON. UTDAT

STA,	DROP #	SIZE	STA.	DROP #	SIZE
81	4	4100*			
84	5	4000			
77	1	3900			
77	2	3800			
77	3	3700	90	14	75 (smallest)
87	9	3 50 0			
86	8	3400			
78	6	3200			
78	7	3100			
79	10	3000			

$$\frac{\text{MMD}}{\text{Con. Factor} = 2.2} = \frac{67.72 + 0.1420 (\text{Spot D Max})}{6.355 \times 2.2} = \frac{295.3 \text{ Microns}}{6.355 \times 2.2}$$

Max. 3ph. Dia. =
$$67.72+9.1420(4100) = \frac{4100}{6.430} = 649.8 \text{ Microns}$$

Min. Sph. Dia. = 48 Microns

MATERIAL: 2 Fuel	Oil, 1 Purp	le	FLOW R	ATE:	80	GPM	
DATE: 7 July 1963			SYSTEM: HIL		IDAL		
FLIGHT #:	12		AIRSPE	ED:	55	Knots	
SAMPLE LINE:	В		ALTITU	DE:	100	Feet	
TIME OF RELEASE:_	0607	Hours	AIRCRA	FT COURSE	: 315	Degrees	
DURATION:	14	Sec.					
STATION G,P,A, Stations 1 - 76 B	STATION	G.P.A.	STATION	G.P.A.	STATION	G.P.A.	
Stations 1 - 76 B	lank					0.0	
					78		
						1.0	
					80		
					81	0.4	
					82	1.4	
					رن	U.,	
					84	0.9	
						0.6	
					86		
					87		
					88	•	
					89		
					90 91		
					92		
					93	0.2	
					94	0.1	
					95	0.3	
					96		
					97		
					98	0.0	
					Stations	99 - 1 00	
						Blank	

300 26.2 24.8 41 26.7 24.8 50 45.00 50.00 Ħ 158 118 26.2 21 1 15.2 25.1 77 77 3 22 02 Antiret August Antiret The of bloss \$1-3-1-3-: 1 1 Ę 8 8 8 - <u>1</u> **-**|≃ 8 18 But at the plant at the c 2 2 2 2 2 - -

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MATERIAL	: 2 Fue	1 0il, 1 Pur	ple	FLOW RATE:	80	GPH
DATE:	7	July 1963		SYSTEM:	RIDAL	
FLIGHT #	:	13		AIRSPEED:	75	Enots
SAMPLE L	INE:	В		ALTITUDE:	100	Feet
TIME OF	RELEASE:_	0644	Hours	AIRCRAFT COURS	BE: 315	Degraes
DURATION	:	11.5	Sec.			
STATION Stations	G.P.A. 1 - 16 B	STATION lank	G.P.A.	STATION G,P,A,	STATION	G.P.A.
17 18 19	0.3					
20 21	0.9					
22 23	0.6					
24	0.8					
25 26 27	0.1					
28 29	0.5					
	30 - 100	Blank				

DATE:	7 July 1963		Conversion	FACTOR:	2.2
FLIGHT #:	14	 _	PAPER:	Kromekote,	white
SAMPLE LINE	: <u>B</u>		MATERIAL:	2 Fuel 011	1 Purple
FLOW BATE:	80	GPH .	SYSTEM:	HIDAL	

STA.	DROP #	SIZE	STA.	DROP #	SIZE
74	1	3100			
74	2	3000			
72	10	2700			
70	9	2400*			
73	3	2300	62	1A	100 (smallest)
73	4	2200			•
73	6	2100			
74	5	2000			
73	7	1900			
73	8	1800			

$$\frac{\text{MMD}}{\text{Con. Factor} = 2.2} = \frac{67,72+0,1420 \text{ (Spot D Max)}}{6.355 \times 2.2} = \frac{2400}{6.355 \times 2.2} = 185.7 \text{ Microns}$$

Max. Sph. Dia. =
$$67.72+0.1420(3100) = \frac{3100}{6.430} = 507.9 \text{ Microns}$$

Min. Sph. Dia. = 63 Microns

SAMPLE LINE: E ALTITUDE: 100 Fee TIME OF RELEASE: 0646 Hours AIRCRAFT COURSE: 315 Degree DURATION: 09 Sec.	MATERIAL: 2 Fuel	0il, 1 Pur	ple	FLOW RATE	:	80	GPM
SAMPLE LINE: E ALTITUDE: 100 Fee TIME OF RELEASE: 0646 Hours AIRCRAFT COURSE: 315 Degree DURATION: 09 Sec.	DATE: 7 J	uly 1963		SYSTEM:	<u>H</u>]	DAL	
TIME OF RELEASE: 0646 HOURS AIRCRAFT COURSE: 315 Degree DURATION: 09 Sec.	FLIGHT #:	14		AIRSPEED:	75	<u>. </u>	Knots
DURATION: 09 Sec.	SAMPLE LINE:	B		ALTITUDE:	10	00	Feet
	TIME OF RELEASE:	0646	Hours	AIRCRAFT	COURSE:	315	Degrees
STATION G.P.A. STATION G.P.A. STATION G.P.A. STATION G.P.A.	DURATION:	09	Sec.				
Stations 1 - 60 Blank			G.P.A.	STATION G.	Ρ,Α,	STATION	G.P.A.

70 0.3
71 0.9
72 0.4
73 0.4
74 0.9
75 0.7
76 0.0

Stations 77 - 150 Blank

% Recovery - 15.6

Total <u>3.6</u>

7 July 1843 1 Marie 20 GR 1 Marie 20 July 1 1 Ma 20645 465. 8 0 P 2 2 2 2 2 1 2 6 252 S 21.0 41.5 E 3: 5 91 15.2 2.45 45 ĸ 9 Ţ H × 4 \nearrow K -T . 99 - 3 3 8 ÷ 8 5 r 复 2 6.59 AF CO. 15 (1) (1940) -- --~ :

MATERIAL: 2 Fuel (Oil, 1 Fur	ole .	Flow	RATE:	80	GP9
DATE: 7.	July 1963		SYSTE	ж:	HIDAL	
FLIGHT #:	15		AIRSP	RED:	55	Knots
SAMPLE LINE:	Α		ALTIT	EDE:	50	Feet
TIME OF RELEASE:	0658	Hours	AIRCR	AFT COURSE	: 270	Degrees
DWRATION:	14	Sec.				
STATION G.P.A.	STATION	G.P.A.	STATION	G.P.A.	STATION	G.P.A.
Stations 1 - 69 Bla	ink					
			70 71	0.5		
			72	2.5		
			73 74			
			75 76			
			77	0.9		
			78 79			
			80	0.9		
			81 Stations	0.5 82 - 100 B	lank	

% Recovery - 52.7

Total <u>16.5</u>

MASS MEDIAN DIAMETER

DATE:	7 July 1963		CONVERSION FACTOR: 2,2
FLIGHT #:	16		PAPER: Kromekote, white
SAMPLE LINE	:- <u>A</u>		MATERIAL: 2 Fuel Oil, 1 Purple
FLOW RATE:	80	CPM	SYSTEM: HIDAL

TA.	DROP #	SIZE	STA.	DROP #	SIZE
29	9	4900±			
25	4	3900			
29	3	3800			
28	1	3700			
29	2	3600	43	1.4	100(smallest)
25	5	3500			,
27	10	3300			
25	7	3200			
25	6	3100			
30	8	3000			

 $\frac{\text{MMD}}{\text{Con. Factor} = 2.2} = \frac{67.72 + 0.1420 \text{ (Spot D Max)}}{6.355 \times 2.2} = 288.9 \text{ Microns}$

Max. Sph. Dia. = $67.72 + 0.1420(4000) = \frac{4000}{6.430} = 635.6$ Microns

Min. Sph. Dia. ≈ 63 Microns

MATERIAL: 2 Fuel	Oil, l Pur	ple	FL	OW RA	TB:	80	GPN
DATE: 7 Jul	y 1963		SY	STEM:		HIDAL	
FLIGHT #:	16		ĄĮ	RSPRE	D:	55	Knots
SAMPLE LINE:	Α		AL:	I I TUD	B:	50	Feet
TIME OF RELEASE:	0700	Hours	AI	RCRAF	T COURSE	: 270	Degrees
DURATION:	16	Sec.					
STATION G.P.A.	STATION	G.P.A	STAT	ION (G,P,A,	STATION	G, P ,A,
Stations 1 - 25 B1	ank 26	1.3					
	27	1.0					
		1.5					
	29						
	3.0						
	31						
	32						
	33						
	34						
	35						
	36						
	37						
		0.8					
	39	-					
		0.7					
		0.7					
	42						
	43						
	44	-					
	45						
	Stations	46 - 3	00 Blank				

0 145 81 2 25.6 84 4 25.2 83 6 25.3 83	No. 14 0 0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		7 207 85 8 20 20 20 1 20 20 20 2 20 20 20 2 2 2 2	
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H-34/HIDAL GROUND FLOW & FLIGHT DATA

DATE CALIBRATED: 6 July 1963	DATE TEST FLOWN:	8 July 196	3
LIQUID SPRAYED: 2 Fuel Oil, 1 Purple	TOTAL NOZZLES OPEN:	60	
NOZZLE TYPE: 8015	LIQUID TEMP:	33.5° c	
DURATION OF SPRAY: 30 Sec.	PUMP PRESSURE:	38-28	P8 I
TOTAL AMOUNT SPRAYED: 39.5 Gal.	FLOW RATE CALIERATE	D:80	GPN

OPERATIONAL DATA DURING FLIGHT

Above information is for Runs 1 - 10.

DATE CALIBRATED: 6 July 1963	DATE TEST FLOWN: 8 July 1963
LIQUID SPRAYED: 2 Fuel Oil, 1 Purple	TOTAL NOZZLES OFEN: 60
NOSSIE TWDE: Chock Velvae	ттоятть темр• 36° С
DURATION OF SPRAY: 20 Sec.	FUMP PRESSURE: 20.5 PSI
TOTAL AMOUNT SPRAYED: 27.5 Gal.	FLOW RATE CALIBRATED: 83 GPM

OPERATIONAL DATA DURING FLIGHT

Above information is for Runs 11 - 14.

MATERIAL: 2 Fuel 011, 1	FLOW R	GPM			
DATE: 8 July 1963		SYSTEM	I: HII	AL	
FLIGHT #:1		AIRSPE	ED:	55	Knot s
SAMPLE LINE: C		ALTITU	DE: 75		Feet
TIME OF RELEASE: 0410	Hours	AIRCRA	FT COURSE:_	360	Degrees
DURATION: 12	Sec.				
STATION G.P.A. STAT	ION G.P.A.	STATION	G.P.A.	STATION	G.P.A.
Stations 1 - 50 Blank		51	Λ ?	76	1.9
		52	0.3	Stations	77 - 100
		5 3			Blank
		54			
		55 56			
			Λ. λ.		
		57	0.3		
		58 59	0.3		
		60	0.4		
		61			
		62			
		63			
			2 0		
		65	1.1		
		65 66 67	1.0		
		U ,	A • 7		
		68			
		69			
		7 0			
		71	1.8		
		72 73 74	د. <i>د</i> ۱ /		
		7/4	1 2		
		75	3.0		

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11 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	March Company of the
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MATERIAL	: 2 Fuel	Oil, 1 Purp	<u>le</u>	FLOW I	RATE:		80	GPM
DATE:	8 Ju	ly 1963		SYSTE	t:	HIDA	L	
FLIGHT #	:2			AIRSP	RED:		55	Knots
SAMPLE L	INE:			ALTIT	DE:	75		Feet
TIME OF	RELEASE:_	0413	Hours	AIRCRA	UFT COU	rse:_	360	Degrees
DURATION	:	13	Sec.					
STATION	G.P.A.	STATION	G.P.A,	STATION	G,P,A,		STATION	G,P,A,
Stations	1 - 10 B	lank				_		 -
11	0.1							
12 13	0.2							
14	0.4							
15								
16								
17								
18 10								
19 20	1.0							
21	2 7							
22	1.8							
23	1.9							
24	4.3							
25								
26								
Stations	27 - 100	Blank						

MASS MEDIAN DIAMETER

DATE:	8 July	1963	CONVERSIO	N FACTOR:	2.2
FLIGHT #:	·	3	PAPER:	Kromekote.	white

SAMPLE LINE: B MATERIAL: 2 Fuel Oil, 1 Purple FLOW RATE: 80

GPH

SYSTEM: HIDAL N.

STA.	DROP #	SIZE	STA.	DROP #	SIZE
24	2	4000			
24	1	3200*			
20	3	3000			
20	4	2900			
20	5	2800	20	1.A	100 (smallest)
20	6	2700			
20	7	2600			
20	10	2500			
20	9	2400			
20	8	2300			

$$\frac{\text{MMD}}{\text{Con. Factor}} = \frac{67.72 + 0.1420 \text{ (Spot D Max)}}{\text{Con. Factor}} = \frac{3200}{6.355 \times 2.2} = 237.3 \text{ Microns}$$

Max. Sph. Dia. =
$$67.72+0.1420(4000) = \frac{4000}{6.430} = 635.6$$
 Microns

Min. Sph. Dia. = 63 Microns

MATERIAL	: 2 Fuel Oil	l, l Purpl	e .	FLOW	RATE:	80	GPH.
DATE:	8 July 1	1963		SYSTE	M:	FIDAL	
FLIGHT #	:3			AIRSF	EED:	75	Knots
SAMPLE L	INE: B	· · · · · · · · · · · · · · · · · · ·		ALTII	TUDE:	75	Feet
TIME OF	RELEASE:	0432	Hours	AIRCR	AFT COUR	SE: 315	Degrees
DURATION	:	13	Sec.				
STATION Stations	G.P.A. 1 - 9 Blank	STATION	G.P.A.	STATION	G.P.A.	STATION	G.P.A.
10 11 12 13	0.2 0.4 0.4						
14 15 16 17 18	0.4 0.5						
19 20 21 22	1.0 0.9 1.5						
23 24 25 26	2.3 1.4 1.7						
27		ank					

MATERIAL: 2 Fuel Oil, 1 Purple	FLOW RATE: 80 GPM
DATE: 8 July 1963	SYSTEM: HIDAL
FLIGHT #: 4	AIRSPEED: 75 Knot
SAMPLE LINE: B	ALTITUDE: 75 Feet
TIME OF RELEASE: 0434 Hours	AIRCRAFT COURSE: 315 Degrees
DURATION: 11 Sec.	
STATION G.P.A. STATION G.P.A.	STATION G.P.A. STATION G.P.A.
	62 0.5 63 0.5 64 0.3 65 0.7 66 0.5 67 0.8 68 1.0 69 1.4 70 1.7 71 2.2 72 1.6 73 2.2 74 1.4
	75 1.2 76 1.1 77 0.5 Stations 78 - 100 Blank

to the second of
MATERIAL: 2 Fuel Oil, 1 Purple	_ FLOW	RATE:	80	GPM
DATE: 8 July 1963	_ 5787	ж:	HIDAL	
FLIGHT #: 5	AIRS	PEED:	75	Knots
SAMPLE LINE: A	_ ALTI	TUDE:	50	Feet
TIME OF RELEASE: 0455 Hour	<u>r</u> AIRO	RAFT COURS	B: 270	Degrees
DURATION: 12 Sec.	Ł			
STATION G.P.A. STATION G.P.	A, STATION	i G.₽.∧.	STATION	G.P.A.
		0.2 0.8		
	66	1.9		
		1.0		
	69	0.7		
	70 71	1.8 1.7		
	72			
	73	-		
	74 75	1.0		
	76	0.2		
	. 77	0.5		
	78	0.2 s 79 - 100	Blank	
	Station	18 /9 - 100	DISUK	

MASS MEDIAN DIAMETER

DATE:	8 July	1963	CONVERSION	FACTOR:	2,2

STA.	DROP #	SIZE	STA.	DROP #	SIZE
22	1	2900*			
22	3	28 00			
22	2	2700			
23	4	26 00			
22	6	25 00	22	1A	100(smallest)
24	5	2400			,
21	8	230 0			
21	7	2200			
22	10	2100			
22	9	2000			

$$\frac{\text{MMD}}{\text{Con. Factor}} = \frac{67.72 + 0.1420 \text{ (Spot D Max)}}{\text{Con. Factor}} = \frac{2900}{6.355 \times 2.2} = 217.9 \text{ Microns}$$

Max. Sph. Dia. =
$$67.72+0.1420(2900) = \frac{2900}{6.430} = 479.5 \text{ Microns}$$

Min. Sph. Dia. = 63 Microns

MATERIAL:	2 Fuel O	il, 1 Purp	le	FLOW	RATE:_	80		GPM
DATE: 8 July 1963				SYSTE	SYSTEM: HIDAL			
FLIGHT #:	6	····		AIRSP	EED:	75	<u> </u>	Knots
SAMPLE LIN	NE :A			ALTIT	UDE:	50)	Feet
TIME OF RE	ELEASE:	0457	Hours	AIRCR	AFT CO	erse:	270	Degrees
DURATION:		13	Sec.					
STATION C	G.P,A,	STATION	G,₽.A.	STATION	G.P.A	·	STATION	G.P.A.
Stations 1	l - 14 Blar	nk						
15 0								
16 C	.5							
18 C 19 1).7 L.0							
20 1	L.6 2.0							
22 C 23 C								
2 4 0	.9							
25 C 26 1								
27 3 28 0	3.1							
	 19 - 100 Bi	lank						

10 12 12 13 0 11 12 15 15 15 15 15 15 15 15 15 15 15 15 15	The state of the s

MATERIAL	: 2 Fu	el 0il, l Pur	ple	FLOW RAT	TB:	80	GP1
DATE:	8	July 1963		SYSTEM:	HID	AL	
FLIGHT #	:	7		AIRSPE	D:	75	Knots
SAMPLE L	DNE:	<u> </u>		ALTITEDE	i:	75	Peet
TIME OF	RELEASE:	0515	Hours	AIRCRAFT	COURSE:_	270	Degrees
DURATION	:	12	Sec.				
STATION	G.P.A.	STATION	G.P.A.	STATION G.	Σ,Δ,	STATION	G.P.A.
Stations	1-95	TEUK					
10							
11 12	0.1						
13 14	0.2						
15 16	0.2						
16 17	0.7						
18							
19 20							
21	0.7						
22 23	0.8						
23 24	1.2						
2 5 26	0.9						
26 27							
Stations	28 - 100	O Blank					

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MATERIAL: 2 Fuel Oil, 1 Purple	PLON RA	ATE:	80	GPN
DATE: 8 July 1963	System:	HI	DAL	
FLIGHT #: 8	AIRSPEE	:	75	Knots
SAMPLE LINE:A	ALTITUD)E:	75	Feet
TIME OF RELEASE: 0517 Hours	AIRCRAF	T COURSE	270	Degrees
DURATION: 15 Sec.				
STATION G.P.A. STATION G.P.A. Stations 1 - 61 Blank	STATION G	G.P.A.	STATION	<u>G.₹.A.</u>
	62 0	.1		
	63 0 64 0).2		
	65 0			
	66 0			
	67 M	iissing		
	68 0 69 0	.7		
	69 0 70 1	.9		
	70 1			
	72 0			
	73 1			
	74 0	.9		
	75 0	.7		
	75 0 76 2 77 0	2.6		
	Stations 7	'8 - 100 I	31ank	

		1	7			
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Stations 30 - 100 Blank

MATERIAL: 2 Fue	1 Oil, 1 Purpl	.e	FLOW RATE:	80	GFM
DATE: 8	July 1963		SYSTEM:	HIDAL	
FLIGHT #:	9	-	AIRSPEED:	55	Knots
SAMPLE LINE:	A		ALTITUDE:	75	Feet
TIME OF RELEASE	: 0548	Hour	AIRCRAFT COURSE:	270	Degrees
DURATION:	16	Sec.			
STATION G.P.A.	STATION	G.P.A.	STATION G.P.A.	STATION	G.F.A.
Stations 1 - 14	Blank				
15 0.1					
16 0.4 17 0.4					
18 0.3 19 0.5					
20 1.2 21 1.9					
22 1.6					
23 1.1 24 1.3					
25 0.7 26 1.6					
27 1.6					
28 3.0 29 0.3					

MASS MEDIAN DIAMETER

DATE: 8	July 1963		CONVERSION FACTOR: 2.2
FLIGHT #:	10		PAPER: Kromekote, white
SAMPLE LINE	: <u> </u>		MATERIAL: 2 Fuel Oil, 1 Purple
FLOW RATE:	80	G PN	SYSTEM: HTDAL

STA.	DROP #	SIZE	STA,	DROP #	SIZE
77	4	3900*			
76	2	3800			
77	3	3700			
73	1	3600			
77	5	3500	75	1 A	100(smallest)
77	6	3400			
79	8	3300			
77	10	3200			
71	9	3100			
75	7	3000			

$$\frac{\text{MMD}}{\text{Con. Factor} = 2.2} = \frac{3900}{6.355 \times 2.2} = 282.4 \text{ Microns}$$

Max. Sph. Dia. =
$$67.72 + 0.1420(3900) = \frac{3900}{6.430} = 621.4$$
 Microns

Min. Sph. Dia. = 63 Microns

MATERIAL: 2 Fuel (Oil, l Purp	le	FLOW 1	RATE:	80	GPM
DATE: 8 July	1963		SYSTE	M:	HIDAL	
FLIGHT #:	10		AIRSP	EED:	55	Knots
SAMPLE LINE:	A		ALTIT	UDE:	75	Feet
TIME OF RELEASE:	0550	Hours	AIRCR	AFT COURSE	: 270	Degrees
DURATION:	14	Sec.				
STATION G.P.A.	STATION	G,P,A.	STATION	G.P.A.	STATION	G.P.A.
Stations 1 - 64 Bl.	ank					
			65 66	0.3		
			66 67	0.3		
			68			
			69			
			70	- • -		
			71 72			
			72 73	2.0		
			74	0.9		
				1.1		
			76	1.7		
			77	1.5		
			78			
			79			
			80			
			Stations	81 - 100	Blank	

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MATERIAL: 2 Fuel	Oil, 1 Purp	le	FLOW B	ATE:	83.0	GPM
DATE:	8 July 19	63	SYSTEM	l:	IDAL	
FLIGHT #:	11		AIRSPE	ED:	55	Knots
SAMPLE LINE:	<u>A</u>		ALTITU	DB:	75	Feet
TIME OF RELEASE:_	0606	Hours	AIRCRA	TT COURSE:_	270	Degrees
DURATION:	19	Seç.				
STATION G.P.A.	STATION	G.P.A.	STATION	G.P.A.	STATION	G.P.A,
Stations 1 - 15 Bl	ank 16	0.1				
	17 18					
		0.6 2.2				
		1.3				
	-	1.9				
	_	2.2				
		2.0				
		2.3				
		1.5				
		1.3				
		1.6				
		6.3				
	29	0.3				
	30	0.4				
	31	0.3				
	32	0.2				
	Stations	33 - 100 1	Blank			

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MASS MEDIAN DIAMETER

DATE:	8 July 1963	3	CONVERSION FACTOR: 2,2	
FLIGHT #:_	12		PAPER: Kromekote, white	
SAMPLE LIN	NB: A		MATERIAL: 2 Fuel Oil, 1 Purple	
FLOW RATE:	83	GPM .	SYSTEM: HIDAL	

DROP #	SIZE	STA,	DROP #	SIZE
	7000			
1	6000*			
7	580 0			
3	5700			
4	560 0	77	1.4	100 (smallest)
8	5400			
6	5300			
5	5200			
9	5100			
10	50 00			
	2 1 7 3 4 8 6 5	2 7000 1 6000* 7 5800 3 5700 4 5600 8 5400 6 5300 5 5200 9 5100	2 7000 1 6000* 7 5800 3 5700 4 5600 77 8 5400 6 5300 5 5200 9 5100	2 7000 1 6000* 7 5800 3 5700 4 5600 77 1A 8 5400 6 5300 5 5200 9 5100

$$\frac{\text{MMD}}{\text{Con. Factor} = 2.2} = \frac{67.72 + 0.1420 \text{ (Spot D Max)}}{6.355 \times 2.2} = 418.0 \text{ Microns}$$

Max. Sph. Dia. =
$$67.72+0.1420(7000) = \frac{7000}{6.430} = 1061.7$$
 Microns

Min. Sph. Dia. = 63 Microns

MATERIAL: 2 Fuel Cil, 1 Purple	FLOW RATE:	83.0	GPM
DATE: 8 July 1963	SYSTEM:	HIDAL	
FLIGHT #:12	AIRSPEED:	55	Knot
SAMPLE LINE: A	ALTITUDE:	75	Feet
TIME OF RELEASE: 0608 Hours	AIRCRAFT COURS	E: 270	Degrees
DURATION: 14 Sec.			
STATION G.P.A. STATION G.P.A.	STATION G.P.A.		
Stations 1 - 72 Blank		73	
		74	
		75	
		76	
		77	
		78 7 9	2.0
		• -	1.1
		81	0.9
		82	0.8
		83	
		84	
		85 86	
		87	
		38	
		Stations	
		Stations	Blank
			Didita

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MASS MEDIAN DIAMETER

DATE:	8 July 196	3	CONVERSION FACTOR: 2.2
FLIGHT #:	13		PAPER: Kromekote, white
SAMPLE LI	NE:A		MATERIAL: 2 Fuel Oil, 1 Purple
FLOW RATE	: 83	GPM	SYSTEM: HIDAL

STA.	DROP #	SIZE	STA.	DROP #	SIZE
79	1	4100*		_	
76	2	4000			
81	4	3800			
77	5	3700			
76	11	35 00	83	1A	100(smallest)
76	6	3400			
76	9	3300			
76	3	3 200			
76	7	3100			
81	8	3000			
76	10	29 00			

MMD =
$$\frac{67.72 + 0.1420 \text{ (Spot D Max)}}{\text{Con. Factor} = 2.2} = \frac{4100}{6.355 \times 2.2} = 295.3 \text{ Microns}$$

Max. Sph. Dia. =
$$67.72+0.1420(4100) = \frac{4100}{6.430} = 649.8 \text{ Microns}$$

Min. Sph. Dia. = 63 Microns

MATERIAL: 2 Fuel Oil, 1 Furple	FLOW RATE:	83.0	GRM
DATE: 8 July 1963	SYSTEM: HI	DAL	
FLIGHT #: 13	AIRSPEED:	75	Knots
SAMPLE LINE: A	ALTITUDE:	5 0	Feet
TIME OF RELEASE: 0628 Hours	AIRCRAFT COURSE:_	270	Degraes
DURATION: 11 Sec.			
STATION G.P.A. STATION G.P.A.	STATION G.P.A.	STATION_	G,P.A,
Stations 1 - 75 Blank		76	0.6
		77	
		78	0.3
		79	0.2
		80	-
		81	- •
		82	
		83	0.3
			0.4
		-	1.1
		86	0.6
		87	
		88	0.8
		89	
		90	
		91 92	
		92	
		Stations	
		SCACIONS	Blan

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MATERIAL: 2 Fuel Oil, 1	Purple		FLOW RA	ATE:	83.0	G P M
DATE: 8 July 1963			SYSTEM	н н	DAL	
FLIGHT #: 14	 -		ALTITU	DE:	5 0	Feet
SAMPLE LINE: A			AIRSPE	SD:	75	Knots
TIME OF RELEASE: 062	29 Hov	II 6	AIRCRAI	T COURSE:	270	Degrees
DURATION:						
STATION G.P.A. STA	ATION G.	P.A.	STATION	G, ₽, ∆ ,	STATION	G.P.A.
Stations 1 - 22 Blank						
	24 1.					
	25 1.					
	26 1.					
	27 1.					
	28 0.					
	29 1.	.0				
	30 1.	2				
	31 0.	.5				
	32 1.	4				
	33 0.	. 2				
	34 0.	.0				
	tions 35		Blank			

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n-34/nidal grown fich & filter bata

DATE CALIBRATED: 7 July 1963	DATE TEST FLORIN: 12 July 1963
LIQUID SPRAYED: Purple	TOTAL NOZZLES OPEN: 60
NOZZLE TYPE: 8015	LIQUID TROP: 36° C
DURATION OF SPRAY: 30 Sec.	FUND PRESSURE: 40 PSI
TOTAL AMBURT SPRAYED: 34.0 Gal.	FLOW RATE CALIBRATED: 68 CPM
Above information is for Runs 1 - 8.	
DATE CALIBRATED: 7 July 1963	DATE TEST FLOWN: 12 July 1963
LIQUID SFRAYED: Purple	TOTAL MOZZLES OPEN: 60
NOZZLE TYPE: Check Valves	LIQUID TEMP: 38.5° C
DURATION OF SPRAY: 30 Sec.	PUMP PRESSURE: 23,5 PSI
TOTAL AMOUNT SPRAYED: 34.5 Gal.	FLOW RATE CALIBRATED: 69 GPM

OPERATIONAL DATA DURING FLIGHT

Above information is for Runs 9 - 14.

MASS MEDIAN DIAMETER

DATE: 12	July 196	3	CONVERSION FACTOR: 2.2	
FLIGHT #:	1		PAPER: Kromekote, white	
SAMPLE LINE:	С		MATERIAL: Purple	
FLOW RATE:	68	GPM	SYSTEM: HIDAL	

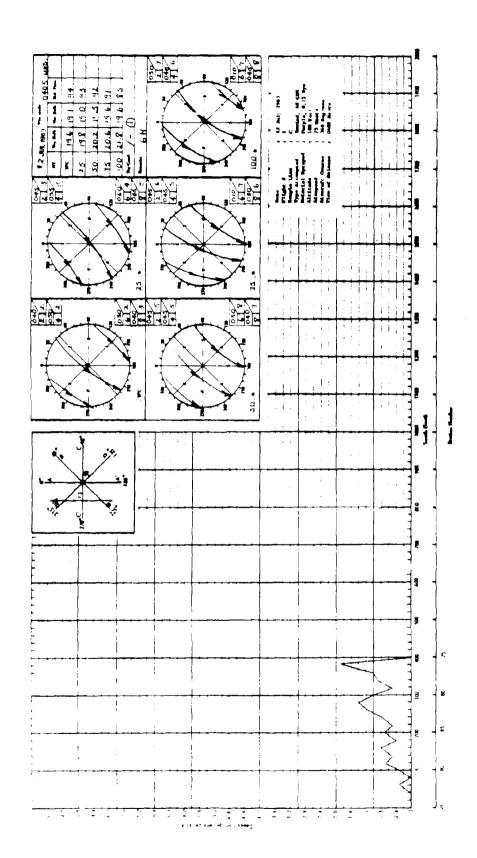
STA,	DROP #	SIZE	STA,	DROP #	SIZE
79	2	4400*			
76	6	4300			
76	5	4200			
79	1	4100			
7 9	3	4000	88	1A	100 (smallest)
79	4	3900			
76	8	3800			
77	7	3700			
80	11	3600			
80	9	3500			

 $\frac{\text{MMD}}{\text{Con. Factor}} = \frac{70.44 + -.1431 \text{ (Spot D Max)}}{2.2} = \frac{70.44 + 0.1431 \text{ (4400)}}{2.2} = 318.2 \text{ Microns}$

Max. Sph. Dia. = 70.44+0.1431 Max Spot = 70.44+0.1431(4400) = 700.1 Microns

Min, Sph. Dia. = 63 Microns

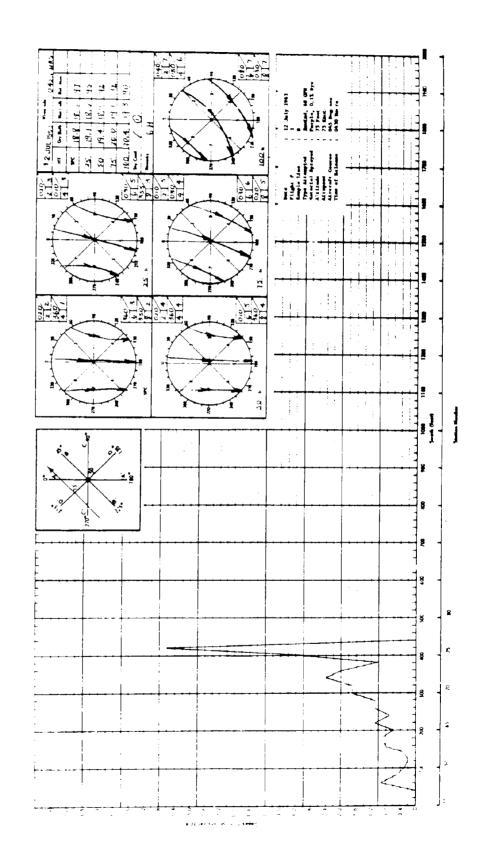
MATERIAL: Purp	le .		FLOW RATE	E:	68	GPM
DATE: 12 July	1963		SYSTEM:_	H	IDAL	
FLIGHT #: 1			AIRSPEED	:	75	Knots
SAMPLE LINE:	<u> </u>		ALTITUDE	:	100	Feet
TIME OF RELEASE:	0409	Hours	AIRCRAFT	COURSE:	360	Degrees
DURATION:	10	Sec.				
STATION G.P.A.	STATION	G.P.A.	STATION G	,P.A,	STATION	G.P.A.
Stations 1 - 75 Bla	ank					1.9
						0.9
						0 .5 1.0
						1.4
						1.2
					83	0.8
						0.5
					85	0.7
						0.4
					87	0.8
					80	0.5
					90	0.7 0.3
					91	0.0
					92	0.3
						0.0
					Station	94 - 1 00
						Blank



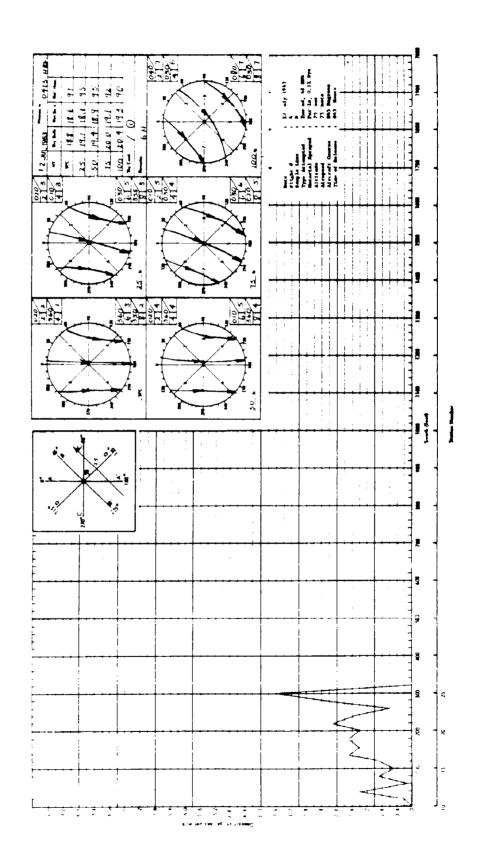
MATERIAL: Purp	le		FLOW PA	.TE:	68	GPM
DATE: 12 Ju	ly 1963		System:		HIDAL	
FLIGHT #:	2		AIRSPEE	D:	75	Knots
SAMPLE LINE:	С		ALTITUD	B:	100_	Feet
TIME OF RELEASE:	0411	Hours	AIRCRAF	T COURSE	:360	Degree
DURATION:	10	Sec.			•	
STATION G.P.A.	STATION	G.P.A.	STATION	G.P.A.	STATION	G.P.A.
Stations 1 - 24 B1	26 27 28 29 30 31 32 33 34 35 36 37 38 39	1.0 0.8 1.1 1.6 1.5 0.9 0.7 0.8 0.3 0.2 0.3 0.3 0.3				
	40 Stations	0.0 41 - 100	Rlank			

0 0 0 0 0 0 0 0 0 0	12	11	**************************************
		600 EU CO	
		89 BI	2 2

MATERIAL: P	urple		FLOW R	ATE:	68	GPM
DATE: 12 .	July 1963		SYSTEM	: HIDA	<u>t</u>	
FLIGHT #:	3		AIRSPE	ED: 75		Knots
SAMPLE LINE:	D		ALTITU	DB:	75	
TIME OF RELEASE:_	0430	Hours	AIRCRA	FT COURSE:_	945	Degrass
DVRATION:	13	Sec.				
STATION G.P.A.	STATION	G,P,A,	STATION	G.P.A.	STATION	G.P.A.
Stations 1 - 57 B	lank					
			58	Λ Q		
			50	0.5		
			5 9 60	0.3		
			61	0.2		
			62	0.3		
			63			
			64			
			65			
			66	1.1		
			67	0.7		
			68 69	1.1		
			69	1.1		
			70	1.7		
			71			
			72			
			73			
			74			
			75			
			76			
			Stations	77 - 100 B	lank	



MATERIAL	:Pur	ple		FLOW RATE:	68	G P H
DATE:	12 ,	July 1963		SYSTEM:	HIDAL	
FLIGHT #	:	4		AIRSPEED:	75	Knots
SAMPLE L	INE :	D		ALTITUDE:	75	Feet
TIME OF	RELEASE:_	0432	Hours	AIRCRAFT COURS	E: 045	Degrees
DURATION	:	11	Sec.			
STATION Stations	G.P.A. 1 - 10 B	STATION lank	G.P.A.	STATION G,P,A,	STATION	G.P.A.
					,	
10	0.2					
12 13	1.4					
14 15	0.5					
16 17	1.7					
	1.7					
20 21	2.1					
22 23	0.6					
24 25	3.6					
Stations	26 - 100	Blank				



MASS MEDIAN DIAMETER

DATE: 12 July 1963 CONVERSION FACTOR: 2.2

FLIGHT #: 5 PAPER: Kromekote, white

SAMPLE LINE: C MATERIAL: Purple

FLOW RATE: 68 GPM SYSTEM: HIDAL

STA,	DROP #	SIZE	STA.	DROP #	SIZE
74	1	6400			
74	2	6100			
73	4	6000			
73	3	5900			
76	6	5300*			
74	5	5200			
73	10	5000	67	1A	100 (smallest)
71	9	4900			,
74	7	4800			
74	8	4100			
73	11	4600			
74	12	4500			
76	13	4400			

MMD = $\frac{70.44+0.1431 \text{ Spot D Max}}{\text{Con. Factor}} = \frac{70.44+0.1431 (5300)}{2.2} = 378.6 \text{ Microns}$

Max. Sph. Dia. = 70.44+0.1431 Max Spot = 70.44+0.1431(6400) = 986.3 Microns

Min. Sph. Dia. = 63 Microns

MATERIAL: Purple				FLOW	RATE:		68	GPM
DATE: 12 July	1963			SYSTE	M:	HIL	MI	
FLIGHT #: 5		,		AIRSP	BED:_	35	3	Knots
SAMPLE LINE: C				ALTIT	UDE:_	7.5	j	Feet
TIME OF RELEASE:	0452	Hours		AIRCR.	AFT C	OURSE:_	360	Degrees
DURATION: 16		Sec.						
STATION G.P.A. Stations 1 - 66 Blan	STATION	G,P,A,	STA	ATION	G,P.	A	STATION	G.P.A.
Stations 1 - 66 Blan	ık							
					1.0			
					1.2			
					1.3			
				. –	2.7			
				72				
				73				
				74				
				75				
				76				
				77	2.7			
				78	3.7			
				79	2.2			
				80	1.1			
				81	0.9			
				82	0.8			
				83	ù.9			
			St	ations	84 -	100 B	lank	

% Recovery - 113.9

Total 35.3

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72 Mg 194. 75 194. 20 19.4 15 19.8			Pitter of Pitter			<u>a</u>
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		-				<u>=</u>
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<u> </u>	J				-	[] []
					-	83
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MATERIAL: Purple	PLOW RATE	i:	68	GPM
DATE: 12 July 1963	System:_	HIDAL		
FLIGHT #: 6	AIRSPEED		55	Knots
SAMPLE LINE: C	ALTITUDE:		75	Feet
TIME OF RELEASE: 0452 Hours	AIRCRAFT	COURSE:_	36 0	Degrees
DURATION: 15 Sec.				
STATION G.P.A. STATION G.P.A	. STATION G.I	٠.٨.	STAT ION	G.P.A.
Stations 1 - 19 Blank				
20 0.9				
21 0.7 22 5.9				
23 3.7 24 2.8				
25 1.3				
26 3.0 27 3.7				
28 1.7				
29 1.7 30 1.5				
31 1.0				
32 0.7 33 1.0				
Stations 34 - 100 Blank				

% Recovery -112,2

Total <u>29.6</u>

4 19.2 | 901 aga -5 19.8 18.9. 12 July 12 ... 15 19.2 19.4 19.2 Fight 6
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MATERIAL:	Purple		FLOH	RATE:	68	GPM
DATE:12	2 July 1963		SYSTE	M:E	IDAL	
FLIGHT #:	7		AIRS	EED:	75	Knots
SAMPLE LINE:	C		ALTIT	TUDE:	75	Feet
TIME OF RELEASE:	0510	Hours	AIRCE	AFT COURSE:_	360	Degrees
DURATION:	12	Sec.				
STATION G.P.A.	STATION	G,P.A,	STATION	G.P.A.	STATION	G.P.A.
					72 75 76 77 78 79 80 81 82	2.1 1.8 2.5 3.3 1.6 1.0 1.3

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MASS MEDIAN DIAMETER

DATE: 12 July 1963	CONVERSION FACTOR: 2.2
FLIGHT #:8	PAPER: Kromekote, white
SAMPLE LINE: C	MATERIAL: Purple
FLOW RATE: 68 GPM	SYSTEM: HIDAI.

STA,	DROP #	SIZE	STA,	DROP #	SIZE
28	2	4700		-	
28	1	4300*			
27	7	4200			
27	6	4100			
28	3	4000	29	1 A	100 (smallest)
28	4	3900			•
28	8	3700			
28	5	3600			
28	9	3400			
28	10	3300			

$$\frac{\text{NMD}}{\text{Con. Factor}} = \frac{70.44 + 0.1431 (\text{Max Spot})}{2.2} = \frac{70.44 + 0.1431 (4300)}{2.2} = 311.7 \text{ Microns}$$

Max. Sph. Dia. = 70.44+0.1431(Max Spot) = 70.44+0.1431(4700) = 743.0 Microns

Min. Sph. Dia. = 63 Microns

MATERIAL:	Purple		FLOW RAT	E:	68	<u> GPM</u>
DATE:	12 July 1963		SYSTEM:_		HIDAL	
FLIGHT #:	8		AIRSPEED	:	75	Knots
SAMPLE LINE:_	<u> </u>		ALTITUDE	:	75	Peet
TIME OF RELEAS	SE: 0512	Hours	AIRCRAFT	COURSE:	360	Degrees
DURATION:	10	Sec.				
STATION G.P.	A. STATION	G.P.A.	STATION G	.P.A.	STATION	G.P.A.
Stations 1 -	25 26 27 28 29 30 31 32	1.6 2.6 2.7 1.6 2.6 1.9 0.7 0.9				

1 2 3 1 2 3 1 4 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		
		8 2

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MATERIAL: Purple	FLOW RATE:	69	GPH
DATE: 12 July 1963	SYSTEM:	HIDAL	
FLIGHT #: 9	AIRSPEED:	55	Knots
SAMPLE LINE: C	ALTITUDE:	75	Feet
TIME OF RELEASE: 0531 Hours	AIRCRAFT COURSE	:360	Degrees
DURATION: 10 Sec.			
STATION G.P.A, STATION G.P.A.	STATION G.P.A.	STATION	G.P.A.
Stations 1 - 73 Blank		74	
		75	
		76	
		77	1.8
		78	3.5
		79	3.1
		80	
		81	0.6
		82	0.8
		83	0.5
		84	0.2
		85	0.3
		86	
		87	
		Stations	88 - 100
			Blank

MATERIAL: Purple	·		FLOW RA	re:	69	GP
DATE: 12 July	1963		SYSTEM:		HIDAL	
FLIGHT #: 10			AIRSPEE):	55	Knot
SAMPLE LINE: C			ALTITUD	3:	75	Fee
TIME OF RELEASE:	0533	Hours	A IRCRAF	COURSE:	360	Degree
DURATION:	13	Sec.				
STATION G.P.A.	STATION	G.P.A.	STATION G	.P.A.	STATION	G. P.A.
Stations 1 - 22 Blank	23	0.0				-,-,-,
	24	0.4				
	25	5.9				
	26	0.7				
	27	1.4				
	28	4.2				
	29	2.6				
	30					
	31	0.7				
	32					
	33					
	34					
	35					
	36					
	37					
		38 - 100	Blank			

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MASS MEDIAN DIAMETER

DATE: 12 July 1963	CONVERSION FACTOR: 2.2
FLIGHT #: 11	PAPER: Kromekote, white
SAMPLE LINE: A	MATERIAL: Purple
FLOW RATE: 69 GPM	SYSTEM: HIDAL

STA.	DROP #	SIZE	STA.	DROP #	SIZE
30	2	7400			
26	1	7300			
26	3	6400*			
26	8	6300			
29	4	6200	35	1A	100 (smallest)
26	5 '	6100			•
26	6	6000			
30	10	5900			
26	7	570 0			
30	9	5600			
26	11	5500			

MMD = $\frac{70.44+0.1431(\text{Spot D Mai.})}{\text{Con. Factor}} = \frac{70.44+0.1431(6400)}{2.2} = 448.3 \text{ Microns}$

Max. Sph. Dia. = 70.44+0.1431(Max Spot) = 70.44+0.1431(7400) = 1129.4 Microns

Min. Sph. Dia. = 63 Microns

rple		FLO	W RATE:	69	GPM
uly 1963		SYS	TEM:	HIDAL	
11		AIR	SPEED:	75	Knots
<u> </u>		ALT	ITUDE:	75	Feet
0620	Hours	AIR	CRAFT COU	RSE: 090	Degrees
11	Sec.				
STATION	3. P.A.	STATION	G.P.A.	STATION	G.P.A.
atik.				73 74 75 76 77 78 79 80 81 82 83 84 85	2.4 4.2 0.9 2.0 2.8 3.7 3.1
	2620	0620 Hours 11 Sec. STATION S.P.A.	SYS 11 AIR ALT 11 Sec. STATION S.P.A. STATION ank	SYSTEM: AIRSPEED: ALTITUDE: 11 Sec. STATION S.P.A. STATION G.P.A. ank	SYSTEM: HIDAL HIDA

11 July 1903 12 July 1903 Market, 49 GH Propile, 0.13 Spec 13 June 1 19 June 1 19 June 1 19 June 1 9 11| Ä \$ 148 + Ä Ö 4 -8 8 ŝ ş ₽ ş 15 8 12 3 ---- -

MATERIAL: Purple			FLOW R	LATE:	69		GPM
DATE: 12 July 19	63		SYSTEM	(:	HIDAL		
FLIGHT #: 12			AIRSPE	ED:	75		Knots
SAMPLE LINE: A			ALTITU	DE:	75		Feet
TIME OF RELEASE: 06	19 н	ours	AIRCRA	LFT COUR	SE:	90	Degrees
DURATION: 12	-	Sec.					
STATION G.P.A. S	TATION	G. P.A .	STATION	G.P.A.		STATION	G, P.A ,
Stations 1 - 24 Blank Stations 1 - 25 Blank	26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42	1.9 4.2 1.8 2.1 1.8 1.4 1.3 1.2 1.5 0.8 0.6 0.4 0.3 0.2) Blank				

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MATERIAL: Purple	e		FLOW	RATE:	69	GP.
DATE: 12 July	1963		SYSTE	M:	HIDAL	
FLIGHT #: 13	3		AIRSP	EED:	55	Knot
SAMPLE LINE:	D		ALTIT	UDE:	75	Fee
TIME OF RELEASE:	0645	Hours	AIRCR	AFT COURSE	: 045	Degree
DURATION:	12	Sec.				
STATION G.P.A.	STATION	G.P.A.	STATION	G.P.A.	STATION	G.P.A.
Stations 1 - 65 Bla	ink		66 67	1.1		
			68 69	1.6		
			70 71			
			72	1.7		
			73	4.0		
			74	2.6		
			75	1.8		
			76	6.6		
			Stations	77 - 100	Blank	

0 10 10 10 10 10 10 10 10 10 10 10 10 10		
200 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		i
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		
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MASS MEDIAN DIAMETER

DATE:	12	July 1963		CONVERSION FACTOR: 2.	2
FLIGHT	#:	14		PAPER: Kromekote, white	
SAMPLE :	LINE:_	D		MATERIAL: Purple	
FLOW RA	TE:	69	G PM	SYSTEM: HIDAI.	

STA,	DRO? #	SIZE	STA,	DROP #	SIZE
25	1	7200	- ,		
23	3	6600*			
23	2	650 0			
. 23	4	6400			
22	7	6300	19	1A	100(smallest)
22	10	6200			•
23	5	6100			
23	9	6000			
23	6	5900			
22	8	5800			

MMD =
$$\frac{70.44+0.1431(\text{Spot D Max})}{\text{Con. Factor}} = \frac{70.44+0.1431(6600)}{2.2} = 461.3 \text{ Microns}$$

Max. Sph. Dia. = 70.44+0.1431(Max Spot) = 70.44+0.1431(7200) = 1100.8 Microns

Min. Sph. Dia. = 63 Microns

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MATER IAL	:Pur	ple		FLOW	RATE:	69	GPM
DATE:	12 Ju	ly 1963		SYSTE	EM:	HIDAL	
FLIGHT #	:	14		AIRSE	PEED:	55_	Knots
SAMPLE L	INE:	D		ALTII	TUDE:	75	Feet
TIME OF	RELEASE:_	0647	Hours	AIRCE	AFT COURSE:	045	Degrees
DURATION	:	14	Sec.				
STATION	G.P.A.	STATION_	G,P,A,	STATION	G.P.A.	STATION	G.P.A.
Stations	1 - 14 B	lank					
15 16							
17	2.2						
ì۵	0.9						
19	0. 5 0. 9						
20 21	1.5						
	3,1						
23							
24	1.1						
25	1.9						
26	6.4						
Stations	27 - 100	Blank					

H-34/HIBAL GROUND FLOW AND FLIGHT DATA

DATE CALIBRATED: 7 July 1963		DATE TEST FLOWN: 1	3 July 19	63
LIQUID SPRAYED: Purple		TOTAL NOZZLES OPEN:	60	
NOZZLE TYPE: Check Valves		LIQUID TEMP:	38.5°	' C _
DURATION OF SPRAY: 30	Sec.	PUMP PRESSURE:	23.5	PS
TYOTAL AMOUNT SPRAYED: 34.5	Gal.	FLOW RATE CALIBRATED:	69	GP:

OPERATIONAL DATA DURING FLIGHT

Above information is for Runs 1 - 18.

MATERIAL: Purple	FLOW RATE:	69	GPM
DATE: 13 July 1963	SYSTEM:	HIDAL	
FLIGHT #: 1	AIRSPEED:	75	Knots
SAMPLE LINE: D	ALTITUDE:	75	Feet
TIME OF RELEASE: 0351 Hours	AIRCRAFT COUR	SE: 045	Degrees
DURATION:			
STATION G.P.A. STATION G.P.A.	STATION G.P.A.	STATION	G.P.A.
Stations 1 - 75 Blank		76	1.9
		77	0.9
		78 79	2.3
		79 80	2.5
•		81	1.2
		82	0.9
		83	
		84	ე.8
		85	
		86	ਹ.8
		87 88 89	0.1
		88	0.5
		89 20	0.4
		91	
			92 - 1 00
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MASS MEDIAN DIAMETER

DATE: 13 July 1963	CONVERSION FACTOR: 2.2
FLIGHT #: 2	PAPER: Kromekote, white
SAMPLE LINE: D	MATERIAL: Furple
PTOW BATTE: 69 GPM	SVSTEM: HIDAI

STA.	DROP #	SIZE	STA,	DROP #	SIZE
29	1	8500	_		
26	2	72 00			
26	3	650 0			
29	7	6100*			
29	6	600 0	36	1A	100 (smallest)
30	8	590 0			
30	9	580 0			
26	4	5700			
30	10	5600			
29	5	550 0			
26	11	540 0			

 $\frac{\text{MHD}}{\text{Con. Factor}} = \frac{70.44 + 0.1431 \text{Spot D Max}}{\text{Con. Factor}} = \frac{70.44 + 0.1431 \text{(6100)}}{2.2} = 428.8 \text{ Microns}$

Max. Sph. Dia. = 70.44+0.1431(Max Spot) = 70.44+0.1431(8500) = 1286.8 Microns

Min. Sph. Dia. = 63 Microns

MAGG DEFOSIT

MATERIAL: Purple		FLOW	RATE:	69	GPM
DATE: 13 July 1963		SYSTE	M:HII	AL	
FLIGHT #: 2		AIRSP	EED:	75	Knot
SAMPLE LINE: D	· · · · · · · · · · · · · · · · · · ·	ALTIT	ໜε:	75	Feet
TIME OF RELEASE: 0353	Hours	AIRCR	AFT COURSE:_	045	Degrees
DURATION:	 				
STATION C B A STATION	C P A	CTATION		C	2 7 4
STATION G.P.A. STATION Stations 1 - 25 Blank 26	1.7	SIATION	G,P.A.	STATION	G.P.A.
27	•				
28					
29					
30					
31					
32					
33					
34					
35					
36					
37 38					
	39 - 100 B	l ank			
Stations	39 - 100 B	Lank			

MATERIAL: Pur	ple		FLOW	RATE:	69	GPH
DATE: 13	July 1963		SYSTE	M: HIDA	L	
FLIGHT #:	3	_ 	AIRSP	EED:	75	Knots
SAMPLE LINE:			ALTIT	UDE:	5 0	Peet
TIME OF RELEASE:	0414	Hours	AIRCR	AFT COURSE:	090	Degrees
DURATION:	12	Sec.				
STATION G.P.A.	STATION	G,P,A.	STATION	G.P.A.	STATION	G.P.A.
			71 72 73 74 75 76 77 78 79	3.5 4.7 0.0 1.2 3.3 3.0 2.9 0.7		
			80 81 82 Stations	0.4	lank	

0 10 T A PACE OF THE PACE 215 Cath time. 94 13 JUL 1983 25 20.9 20.6 30 20.9 20.6 K 5 Ŧ 52 Ħ 8 8 6 3-3-11111 g ž 100 Į ı ¥,s 8 1 3 નું 3ક \$ ŧ 7 5 R 1 - -2 ~ 3 -8 *** 8 0

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MASS MEDIAN DIAMETER

DATE:	13 July 1	963	CONVERSION	FACTOR: 2.2	2
FLIGHT #:	4		PAPER:	Kromekote, whi	ite
SAMPLE LINE:_	_ A		MATERIAL:_	Purple	
FLOW RATE:	69	GPM	SYSTEM:	HTDAT.	

STA,	DROP #	SIZE	STA.	DROP #	SIZE
27	4	7600		<u> </u>	
2 7	1	7000			
27	2	6800≉			
27	9	67 00			
27	3	66 00			
27	11	6400	8	1A	100 (smallest)
27	6	6300			•
27	10	62 00			
27	5	6100			
27	8	6000			
27	7	5 900			

 $\frac{\text{MMD}}{\text{Con. Factor}} = \frac{70.44 + 0.1431 \text{ (Spot D Max)}}{\text{Con. Factor}} = \frac{70.44 + 0.1431 \text{ (6800)}}{2.2} = 474.3 \text{ Microns}$

Max. Sph. Dia. = 70.44+0.1431(Max Spot) = 70.44+0.1431(7600) = 1158.0
Microns

Min. Sph. Dia. = 63 Microns

	FLOW RATE:	69	GPM
	SYSTEM: H	DAL	<i>-</i>
	AIRSPEED:	7 5	Knots
	ALTITUDE:	5 0	Feet
Hours	AIRCRAFT COURSE:	090	Degrees
Sec.			
G.P.A.	STATION G.P.A.	STATION	G. P. A.
	Hours Sec.	SYSTEM: HI AIRSPEED: ALTITUDE: HOUTS AIRCRAFT COURSE: Sec.	SYSTEM: HIDAL AIRSPEED: 75 ALTITUDE: 50 Hours AIRCRAFT COURSE: 096

MATERIAL: Purple	FLOW RA	TB:6	9	GPM
DATE: 13 July 1963	SYSTEM:	HID	AL	
FLIGHT # :5	AIRSPEE	D: <u>55</u>		Knots
SAMPLE LINE: D	ALTITUDI	ß:	50	Feet
TIME OF RELEASE: 0439 Hours	AIRCRAF	T COURSE:_	045	Degrees
DURATION: 13 Sec.				
STATION G.P.A. STATION G.P.A. Stations 1 - 63 Blank	STATION G	, P . A ,	STATION	G,P.A.
	64 0. 65 0.	.0		
	66 0. 67 0.	.0		
	68 0. 69 0. 70 0.	.5		
	71 1. 72 2.	. 5		
	73 2. 74 1.	.3		
	75 0. 76 4.	.3 .1		
	77 4. Stations 78		ank	

208 20. 18 208 20. 18 20. 20. 18 20. 20. 18 20. 20. 18		
1 2 20 20 4 20 20 4 20 4 20 4 20 4 20 4		98.
7 - 7 - 7 - 7 - 7 - 7 - 7 - 7 - 7 - 7 -		1
	g I	
		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

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MASS MEDIAN DIAMETER

DATE:13	July 196	53	CONVERSION FACTOR: 2.2
FLIGHT #:	6		PAPER: Kromekote, white
SAMPLE LINE:	D		MATERIAL: Purple
FLOW BATE:	69	G PM	SYSTEM: HIDAL

STA,	DROP #	SIZE	STA.	DROP #	SIZE
23	1	8800			
24	6	76 00			
23	3	7 000 *			
23	2	68 00			
23	4	66 00	14	1.	100(smallest)
22	9	65 00			
22	10	6400			
23	5	63 00			
25	8	62 00			
24	7	61 00			
25	11	6000			

MMD - $\frac{70.44+0.1431(Spot D Max)}{Con. Factor} = \frac{70.44+0.1431(7000)}{2.2} = 487.3 \text{ Microns}$

Max. Sph. Dia. = 70.44+3.1431(Max Spot) = 70.44+3.1431(8800) = 1329.7

Microns

Min. Sph. Dia. = 63 Microns

MATERIAL: Pur	ple		FLOW RATE:	69	GPM
DATE:13 J	uly 1963		SYSTEM:	HIDAL	
FLIGHT #: 6			AIRSPEED:	55	Knots
SAMPLE LINE: D			ALTITUDE:	50	Feet
TIME OF RELEASE:_	0441	Hours	AIRCRAFT COURSE:	045	Degrees
DURATION:	_16	Sec.			
STATION G.P.A.	STATION	G. P.A.	STATION G.P.A.	STATION	G.P.A.
Stations 1 - 15 B	lank				
16 0.0					
17 0.2 18 0.2					
19 0.7					
20 2.1 21 2.7					
22 2.9					
23 2.7 24 0.7					
25 1.0					
26 7.8 27 1.2					
Stations 28 - 100	Blank				

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	marked 4.1Mc			

MATERIAL	:	P	urple		FLOW	RATE:	69	GPH
DATE:		13 ,	July 1963		SYST	BM:	HIDAL	
FLIGHT #	:				A IRS	PEED:	55	Knots
SAMPLE L	INE:_	D			ALTI	TUDE:	75	Feet
TIME OF	RELEAS	3B:	0500	Hours	AIRC	RAPT COURSE	3: <u>045</u>	Degrees
			12					
STATION	G.P.	۸	STATION	G.P.A.	. STATION	G.P.A.	STATION	G.P.A.
Stations	1 - 1	12 B	lank					
13								
14 15								
16	1.0							
17 18	1.3							
19								
20 21								
22	2.3							
23 24								
24 25								
26	0.0							
Stations	27 -	100	Blank					

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DATE: 13 July 1963 SYSTEM: HIDAL FLIGHT #: 8 AIRSPRED: 55 Knots SAMPLE LINE: D ALTITUDE: 75 Feet TIME OF RELEASE: 0502 Hours AIRCRAFT COURSE: 045 Degrees DURATION: 15 Sec. STATION G.P.A. STATION G.P.A. STATION G.P.A. STATION G.P.A. Stations 1 - 63 Blank 64 0.1 65 1.0 66 0.9 67 0.2 68 0.5 69 1.2 70 1.6 71 2.9 72 2.7 73 1.6	MATERIAL:	Purple		FLOH	RATE:	_69	GPM
SAMPLE LINE: D ALTITUDE: 75 Feet TIME OF RELEASE: 0502 Hours AIRCRAFT COURSE: 045 Degrees DURATION: 15 Sec. STATION G.P.A. STATION G.P.A. STATION G.P.A. STATION G.P.A. Stations 1 - 63 Blank 64 0.1 65 1.0 66 0.9 67 0.2 68 0.5 69 1.2 70 1.6 71 2.9 72 2.7 73 1.6	DATE:	13 July 1963		SYSTE	M:	HIDAL	
TIME OF RELEASE: 0502 Hours AIRCRAFT COURSE: 045 Degrees DURATION: 15 Sec. STATION G.P.A. STATION G.P.A. STATION G.P.A. STATION G.P.A. Stations 1 - 63 Blank 64 0.1 65 1.0 66 0.9 67 0.2 68 0.5 69 1.2 70 1.6 71 2.9 72 2.7 73 1.6	FLIGHT #:	8		AIRSP	RED:	55	Knots
DURATION: 15 Sec. STATION G.P.A. STATION G.P.A. STATION G.P.A. STATION G.P.A. Stations 1 - 63 Blank 64 0.1 65 1.0 66 0.9 67 0.2 68 0.5 69 1.2 70 1.6 71 2.9 72 2.7 73 1.6	SAMPLE LINE:	D		ALTIT	WDE:	75	Feet
STATION G.P.A. STATION G.P.A. STATION G.P.A. STATION G.P.A. Stations 1 - 63 Blank 64 0.1 65 1.0 66 0.9 67 0.2 68 0.5 69 1.2 70 1.6 71 2.9 72 2.7 73 1.6	TIME OF RELEASE:	0502	Hours	AIRCR	AFT COURSE	045	Degrees
Stations 1 - 63 Blank 64	DURATION:	15	Sec.				
Stations 1 - 63 Blank 64	STATION G.P.A.	STATION	G.P.A.	STATION	_G,P,A,	STATION	_G, P.A
65 1.0 66 0.9 67 0.2 68 0.5 69 1.2 70 1.6 71 2.9 72 2.7 73 1.6	Stations 1 - 63	Blank					
65 1.0 66 0.9 67 0.2 68 0.5 69 1.2 70 1.6 71 2.9 72 2.7 73 1.6							
65 1.0 66 0.9 67 0.2 68 0.5 69 1.2 70 1.6 71 2.9 72 2.7 73 1.6							
65 1.0 66 0.9 67 0.2 68 0.5 69 1.2 70 1.6 71 2.9 72 2.7 73 1.6							
65 1.0 66 0.9 67 0.2 68 0.5 69 1.2 70 1.6 71 2.9 72 2.7 73 1.6							
65 1.0 66 0.9 67 0.2 68 0.5 69 1.2 70 1.6 71 2.9 72 2.7 73 1.6							
66 0.9 67 0.2 68 0.5 69 1.2 70 1.6 71 2.9 72 2.7 73 1.6							
68 0.5 69 1.2 70 1.6 71 2.9 72 2.7 73 1.6				66	0.9		
70 1.6 71 2.9 72 2.7 73 1.6				67 68	0.2		
70 1.6 71 2.9 72 2.7 73 1.6				69	1.2		
72 2.7 73 1.6				70	1.6		
73 1.6							
				• •	• •		
74 2.2				74	2.2		
75 5.1				75 76	5.1		
76 2.1 Stations 77 - 100 Blank						Blank	

MATERIAL: Purple	FLOW RATE:	69	GPN
DATE: 13 July 1963	SYSTEM: HIL	AL	
FLIGHT #: 9	AIRSPEED:	75	Knots
SAMPLE LINE: C	ALTITUDE:	75	Feet
TIME OF RELEASE: 0520 Hours	AIRCRAFT COURSE	:360	Degrees
DURATION: 13 Sec.			
STATION G.P.A. STATION G.P.A.	STATION G.P.A.		
Stations 1 - 74 Blank			3.0
			0.2
		77 78	1.5
		90	1.1
			0.0
			0.1
			0.0
			0.1
		85	
		86	0.1
		87	0.0
		88	0.0
			89 - 1 00
			Blank

MATERIAL:	Purple		FLOW RATE:	69	G P N
DATE: 13	July 1963		SYSTEM: H	IDAL	
FLIGHT #:	10		AIRSPEED:	75	Knots
SAMPLE LINE:	С		ALTITUDE:	75	Feet
TIME OF RELEASE:	0522	Hours	AIRCRAFT COURSE:	360	Degrees
DURATION:	15	Sec.			
STATION G.P.A.	STATION	G.P.A.	STATION G.P.A.	STATION	G,P.A,
Stations 1 - 23 E	25 26 27 28 29 30 31	4.8 0.1 3.1 2.2 0.9 0.4 0.2 0.3 0.0			
	36 Stations		0 Blank		

20.8 20.5 36.7 30 Figure 6
Figure 6
Figure 6
Figure 6
Figure 6
Figure 7
Fig 3-9-12c. + 8 Ę ş ş \$ ğ ĝ . . . and the telephone

MACC MEDIAN DIAMETER

DATE: 13 July 1953	CONVERSION FACTOR: 2.2
FLIGHT #: 11	PAPER: Kromekote, white
SAMPLE LINE: C	MATERIAL: Purple
FLOW RATE: 69 GPM	(SYSTEM: Hidal

DROP #	SIZE	STA.	DROP #	SIZE
1	7100			
2	6400*			
7	630 0			
6	62 00			
4	6100	74	1 A	100 (smallest)
3	590 0			
5	580 0			
8	570 0			
9	560 0			
10	55 00			
	1 2 7 6 4 3 5 8 9	1 7100 2 6400* 7 6300 6 6200 4 6100 3 5900 5 5800 8 5700 9 5600	1 7100 2 6400* 7 6300 6 6200 4 6100 74 3 5900 5 5800 8 5700 9 5600	1 7100 2 6400* 7 6300 6 6200 4 6100 74 1A 3 5900 5 5800 8 5700 9 5600

MatD = $\frac{70.44+0.1431(\text{Spot D Max})}{\text{Con. Factor}} = \frac{70.44+0.1431(6400)}{2.2} = 448.3 \text{ Microns}$

Max. Sph. Dia. = 70.44+0.1431 (Max Spot) = 70.44+0.1431 (7100) = 1086.5 Microns

Min. Sph. Dia. = 48 Microns

MATERIAL:	Purple		FLOW	RATE:	69	GPM
DATE:	13 July 196	3	SYSTE	M:	HIDAL	
FLIGHT #:	11		AIRSP	BED:	75	Knots
SAMPLE LINE:	C		ALTIT	UDE:	75	Feet
TIME OF RELEASE:	0552	Hours	AIRCR	AFT COURSE	: 360	Degrees
DURATION:	15	Sec.				
STATION G.P.A.	STATION	G. P.A.	STATION	G.P.A.	STATION	G.P.A.
			76 77 78 79 80	0.2 1.2 0.6 1.8 2.4 2.4 1.8 0.5 0.3 3.7 4.1 2.0 1.4 0.5		
			81 Stations	0.5 82 - 100	Blank	

		•••••••	1200 1300 1400 1300 1440 1700 1500 1700 1500 1700 1500 1700 170
	72 08		X 0 4.00 7.00 800 10.00 1.00 1.00 1.00 1.00 1.00 1
			25 30 10 10 10 10 10 10 10 10 10 10 10 10 10

MATERIAL: P	urple		FLOW	RATE:	69	GPH	
DATE: 3 Ju	ly 1963		SYSTE	DM:	HIDAL		
FLIGHT #: 12			AIRSI	BED:	75	Knots	
SAMPLE LINE: C			ALTIT	TUDE:	<u>75</u>	Feet	
TIME OF RELEASE:_	0555	Hours	AIRCE	LAFT COURSE	360	Degrees	
DURATION:		Sec.					
STATION G.P.A.	STATION	G.P.A.	STATION	G.P.A.	STATION	G.P.A.	
Stations 1 - 20 B	22 23	0.8 2.3					
	24 25 26						
	27 28	5.3 1.3					
	29 30 31						
	32 33	0.9					
	35						
	36 Stations	0.0 5 37 - 1 60	Blank				

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18 1 3 M 1855 2 M 18	A- A-01 N-0A		+++		1
3 - 3 - 3 - 3 - 3 - 3 - 3 - 3 - 3 - 3 -					§ -
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MASS MEDIAN DIAMETER

DATE:	13 July 1963	CONVERSION FACTOR: 2,2
FLIGHT #:	13	PAPER: Kromekote, white
SAMPLE LINE	3:D	MATERIAL: Purple
FLOW RATE:	69 GPM	SYSTEM: HIDAL

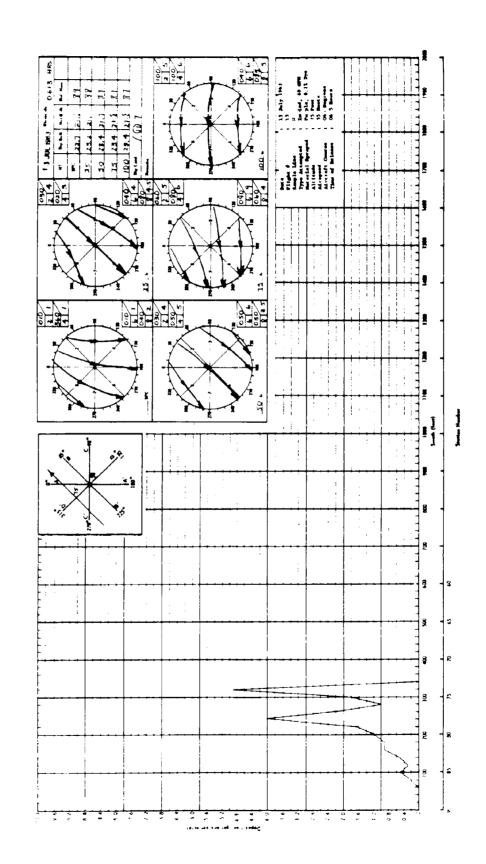
STA.	DROP #	SIZE	STA.	DROP #	SIZE
77	1	8400			
75	4	62 00*			
77	2	6100			
77	5	59 00			
77	8	58 00	94	1A	100 (smallest)
75	. 9	570 0			
78	7	550 0			
77	11	5 400			
78	3	53 00			
77	6	52 00			
78	10	5000			

MMD =
$$\frac{70.44+0.1431(\text{Spot D Max})}{\text{Con. Factor}} = \frac{70.44+0.1431(6200)}{2.2} = 435.3 \text{ Microns}$$

Max. Sph. Dia. = 70.44÷0.1431(Max Spot) = 70.44+0.1431(8400) = 1202.0 Microns

Min. Sph. Dia. = 63 Microns

MATERIAL:	Purple		FLOW	RATE:	69	GPI	
DATE:13	July 1963		SYSTEM:		HIDAL	·····	
FLIGHT #:	13		AIRSP	RED:	55	Knots	
SAMPLE LINE:	D		ALTITUDE: 75		75	Feet	
TIME OF RELEASE:	0615	Hours	AIRCR	AFT COURSE:	045	Degrees	
DURATION:	13	Sec.					
STATION G.P.A.	STATION	G.P.A.	STATION	G.P.A.	STATION	G. P.A.	
Stations 1 - 73	Blank				74 75	4.9	
					76 76	1.0	
					77	2.2	
					78		
					79	1.6	
					8 0	1.2	
					81	0.9	
					82	0.9	
					83	0.5	
					84		
					85		
					86		
					Stations	87 - 100 Blank	



MATERIAL: Purp	le		FLOW	RATE:	59	GPH	
DATE: 13 July 1963			SYSTEM: HIDAL				
FLIGHT #: 14			AIRSP	EED:	55	Knots	
SAMPLE LINE: D			ALTIT	UDE:	75	Feet	
TIME OF RELEASE:	0617	Hours	AIRCR	AFT COURSE:	045	Degraes	
DURATION:	13	Sec.					
STATION G.P.A.	STATION	G.P.A.	STATION	G.P.A.	STATION	G.P.A.	
Stations 1 - 22 Blan	24 25 26 27 28 29 30 31 32 33	4.0 2.3 0.7 2.2 4.2 1.9 0.5 0.4 0.3 0.9					
		36 - 100	Blank				

13 JAL 1963 25 23.4 1 4 1 ¦ 9 2 ŧ £ 2 \$ 2 Same and and the same of the s 7 ----- •

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MATERIAL:	Purple		FLOW RATE:_	69	GPH
DATE:	13 July 1963		SYSTEM:	HIDAL	
FLIGHT #:	15		AIRSPEED:	75	Knots
SAMPLE LINE:	<u>p</u>		ALTITUDE:	75	Feet
TIME OF RELEASE	0633	Hours	AIRCRAFT CO	JRSE: 045	Degrees
DURATION:	15	Sec.			
STATION G.P.A.	STATION	G, P, A.	STATION G.P.A	. STATION	G.P.A.
Stations 1 - 66	Blank				
			67 0.0 68 11.8		
			69 2.0 70 0.6		
			71 1.4		
			73 1.3		
			74 0.5 75 0.4		
			76 0.1		
			77 0.2 78 0.1		
			Stations 79 - 1	l00 Blank	

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MATERIAL: Pur	ple	 _	PLOW	RATE:	69	GPH
DATE:13 Ju	ly 1963		SYSTI	DI:	HIDAL	
FLIGHT #: 1	6		AIRSI	PEED:	75	Knots
SAMPLE LINE:	D		ALTI	TADE:	75	Feet
TIME OF RELEASE:	0635	Hours	AIRCE	MFT COURSE:	045	Degrees
DURATION: 17	<u> </u>	Sec.				
STATION G.P.A.	STATION	G.P.A.	STATION	G.P.A.	STATION	G.P.A.
Stations 1 - 23 Blan	25 26 27 28 29 30 31 32 33 34 35	4.5 2.7 1.3 0.6 4.0 1.5 0.6 0.2 0.2	Blank			

10 2 2 2 2 2 2 3 3 18 18 2 3 3 18 18 3 3 18 18 3 3 3 18 3 3 3 3 3 3 3 3 3	1	13 14 14 15 15 15 15 15 15		THE TAME THE TAME THE TAME THE TAME THE TAMES	
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				1:10 200 1:00 4:000	2

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MASS MEDIAN DIAMETER

DATE: 13 July 1963	CONVERSION FACTOR: 2.2
FLIGHT #: 17	PAPER: Kromekote, white
SAMPLE LINE: A	MATERIAL: Purple
FLOW RATE: 69 GPM	SYSTEM: HIDAL

STA,	DROP #	SIZE	STA.	DROP #	SIZE
28	1	7500			
25	4	6700*			
25	3	66 00			
25	5	65 00			
25	2	6 400	45	1A	100 (smallest)
25	6	63 00			
25	8	6200			
25	7	61 00			
25	9	6000			
27	11	5 900			
28	10	5800			

MMD = $\frac{70.44+0.1431(\text{Spot D Max})}{\text{Con. Factor}} = \frac{70.44+0.1431(6700)}{2.2} = 467.8 \text{ Microns}$

Max. Sph. Dia. = 70.44+0.1431(Max Spot) = 70.44+0.1431(7500) = 1143.7 Microns

Min. Sph. Dis. = 63 Microns

MATERIAL: Purple		FLOW RATE:	69	G PM
DATE: 13 July 1963		SYSTEM:	HIDAL	
FLIGHT #: 17		AIRSPEED:_	75	Knots
SAMPLE LINE: A		ALTITUDE:_	100	Feet
TIME OF RELEASE: 0652	Hours	AIRCRAFT CO	OURSE: 090	Degrees
DURATION: 14	Sec.			
STATION G.P.A. STATION	G.P.A.	STATION G.P.A	A. STATION	G.P.A.
Stations 1 - 23 Blank 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 Stations	0.2 3.7 1.5 1.2 1.4 0.7 2.1 0.3 0.3 0.4 0.3 0.2 0.4 0.2	Blank		

Files Files Files Files Files Altered Altered Altered Altered Files File 3737 1 0,0 8 8 : -8 3 8 ğ 8 3 4 Boundary Harring

MATERIAL: Purpl	e		FLOW RATE:	69	GPM
DATE: 13 Jul	y 1963		SYSTEM:	HIDAL	
FLIGHT #: 1	8		AIRSPEED:	75	Knots
SAMPLE LINE:	Α		ALTITUDE:	100	Feet
TIME OF RELEASE:	0654	Hour	AIRCRAFT COURSE:	0 9 0	Degrees
DURATION:	18	Sec.			
STATION G.P.A.	STATION	G.P.A.	STATION G.P.A.	STATION	G.P.A.
Stations 1 - 71 Bla	nk			72 73	0.0
				73	0.1 1.5
				74 75	5.3
				75	0.2
					0.4
					1.3
					1.5
					1.0
					1.9
				82	0.2
				83	0.2
				84	0.1
					0.1
					0.1
				Station	87 - 100
					Blank

45. 14 8.24 122 13 JUL 1968 Figure 6
Figure 6
Figure 1 Las
EK 15_4 20 4.0 B 1 ŢĪ ğ 1 8 4 9 8 * * * EN PALISH HINEMAG

B 34/BINAT COMMON PICE & PITCOT DATA

DATE CALIBRATED: 10	5 July 19	63	DATE TEST FLOWN: 16 July 19					
LIQUID SFRAYED: Purple MOZZLE TYPE: 8015			TOTAL NOZZLES OPEN:	60 37° 2				
			LIQUID TEMP:					
DURATION OF SPRAY:	30	Sec.	PUMP PRESSURE:	32	PSI			
TOTAL AMOUNT SPRAYED:	28	Gal.	FLOW RATE CALIBRATED:	56_	GPH			

OFFRATIONAL DATA DURING FLIGHT

Above information is for Runs 1 - 16.

The pressure readings are from the pressure gauge mounted on the pump which was subsequently proven to be inaccurate.

MASS MEDIAN DIAMETER

DATE:	16 July 1	963	CONVERSION FACTOR: 2.2
FLIGHT #:	1		PAPER: Kromekote, white
SAMPLE LI	NE: B		MATERIAL: Purple
FLOW RATE	: 56	GPM	SYSTEM: HIDAL

STA.	DROP #	SIZE	STA.	DROP #	SIZE
76	1	5400 *			
76	2	6200			
76	3	6100			
73	4	600 0			
7 7	8	590 0	100	1A	100 (smallest)
77	7	5800			
73	5	560 0			
73	6	5500			
77	9	5400			
76	10	5300			

MMD = $\frac{70.44+0.1431 \text{ (Spot D Max)}}{\text{Con. Factor}} = \frac{70.44+0.1431 \text{ (6400)}}{2.2} = 448.3 \text{ Microns}$

Max. Sph. Dia. = 70.44+0.1431(Max Spot) = 70.44+0.1431(6400) = 986.3 Microns

Min. Sph. Dia. = 63 Microns

MATERIAL: Pur	ple		FLOW	RATE:		56	GPM
DATE: 16 July 1963			SYSTEM:		н	IDAL	
FLIGHT #:	1		AIRSP	EED:_	5	5	Knot
SAMPLE LINE:	В		ALTIT	UDE:_	7.	5	Feet
TIME OF RELEASE:	0410	Hours	AIRCE	AFT C	OURSE:_	315	Degrees
DURATION:							
STATION G.P.A.	STATION	G.P.A.	STATION	G.P.	Α,	STATION	G.P.A.
Stations 1 - 69 Bl.	ank					70	0.0
						71	
						72	
						73	
						74	1.8
						75 76 77	0.5
						/ D	1 2
						7.7 7.8	1.5
						79	
						80	
						81	
			• • •			82	0.2
						83	0.1
						82 83 84	0.1
						85	0.0
						Stations	86 - 100 Blank

1	11/2/20	\$ - \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \			•	1
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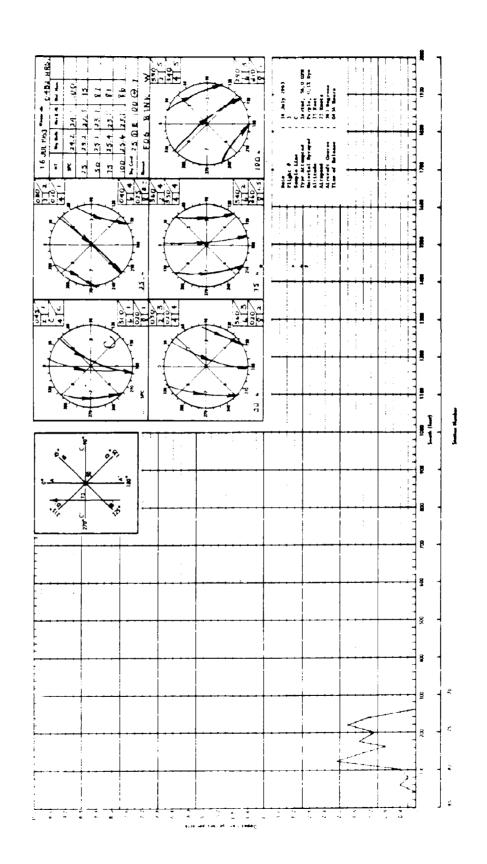
MATERIAL: Purple		FLOW RATE	:56	GPM
DATE: 16 July 1963		SYSTEM:	HIDAL	
FLIGHT #: 2		AIRSPEED:	55	Knots
SAMPLE LINE: B		ALTITUDE:	75	Feet
TIME OF RELEASE: 0412	Hours	AIRCRAFT (COURSE: 315	Degrees
DURATION:				
STATION G.P.A. STATIO	N G,P,A.	STATION G.P	A. STATION	G.P.A.
Stations 1 - 20 Blank 21 22 23 24 25 26 27 28 29 30 31	0.4 1.5 1.8 1.4 0.8 0.6 1.7 1.7 1.1			
	0.1) 19.1 1-		

% Recovery -

- Total <u>12.4</u>

			4	(ma) years	4	1	
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	4 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -	1	2 2 4 4 4 1 4 1 4 4 1 1 1 1 1 1 1 1 1 1	1000	82, 11, 11, 11, 11, 11, 11, 11, 11, 11, 1	93	7777
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13 13 13 13 13 13 13 13 13 13 13 13 13 1	•/X						
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237 25	25.0	3 77					
	19.3				1 22		_

MATERIAL:	Purple		FLOW BAT	3 :5	6	GPM
DATE:	16 July 1963		SYSTEM:_	HID	AL	
FLIGHT #:	3		AIRSPEED	:75		Knots
SAMPLE LINE:	С		ALTITUDE	75		Feet
TIME OF RELEASE	:0434	Hours	AIRCRAFT	COURSE:_	360	Degrees
DWRATION:	11	Sec.				
STATION G.P.A.	STATION	G.₹.A.	STATION G.	P.A.	STATION	G, P, A,
Stations 1 - 72	Blank				73	
					74 75	
					75 76	
				-	77	
					78	1.4
					79	2.1
					80	
					81	0.2
					82	
					Stations	83 - 100
						Blank



MASS MEDIAN DIAMETER

DATE: 16 July 1963	CONVERSION FACTOR: 2.2
FLIGHT #:4	PAPER: Kromekote, white
SAMPLE LINE: C	MATERIAL: Purple
PLOU BATTE: SA CPM	SYSTEM: HIDAL

STA,	DROP #	SIZE	STA.	DROP #	SIZE
24	1	4300*			
24	4	4200			
24	2	4100			
24	3	4000			
27	6	3900	50	1 A	100 (smallest)
24	5	3800			
27	7	3700			
27	8	360 0			
23	10	350 0			
24	9	340 0			
			· · · ·		

MMD =
$$\frac{70.44+0.1431(\text{Spot D Max})}{\text{Con. Factor}} = \frac{70.44+0.1431(4300)}{2.2} = 311.7 \text{ Microns}$$

Max. Sph. Dia. = 70.44+0.1431(Max Spot) = 70.44+0.1431(4300) = 685.8 Microns

Min. Sph. Dia. = 63 Microns

SAMPLE LINE: C ALTITUDE: 75 Feet TIME OF RELEASE: 0436 Hours AIRCRAFT COURSE: 360 Degree DURATION: 9 Sec. STATION G.P.A. STATION G.P.A. STATION G.P.A. STATION G.P.A. Stations 1 - 21 Blank 22 0.2 23 1.8 24 1.4 25 1.5 26 0.8 27 0.9 28 2.0 29 1.9 30 1.4 31 0.7 32 0.6 33 0.2 34 0.5 35 0.4 36 0.8 27 0.4 38 0.8 39 0.7 40 0.6 41 0.2	MATERIAL:	Purpl	.e			FLO	/ RAT	re:	5	6	GPM
SAMPLE LINE: C ALTITUDE: 75 Feet TIME OF RELEASE: 0436 Hours AIRCRAFT COURSE: 360 Degree DURATION: 9 Sec. STATION G.P.A. STATION G.P.A. STATION G.P.A. STATION G.P.A. Stations 1 - 21 Blank 22 0.2 23 1.8 24 1.4 25 1.5 26 0.8 27 0.9 28 2.0 29 1.9 30 1.4 31 0.7 32 0.6 33 0.2 34 0.5 35 0.4 36 0.8 27 0.4 38 0.8 39 0.7 40 0.6 41 0.2	DATE:	16 Jul	y 1963			SYST	ŒM:		HID	<u>A</u> L	
TIME OF RELEASE: 0436 Hours AIRCRAFT COURSE: 360 Degree of the property of the	FLIGHT #:	4				AIRS	PEEI): <u></u>	75		Knots
DURATION: 9 Sec. STATION G.P.A. STATION G.P.A. STATION G.P.A. STATION G.P.A. Stations 1 - 21 Blank 22 0.2 23 1.8 24 1.4 25 1.5 26 0.8 27 0.9 28 2.0 29 1.9 30 1.4 31 0.7 32 0.6 33 0.2 34 0.5 35 0.4 36 0.8 27 0.4 38 0.8 39 0.7 40 0.6 41 0.2	SAMPLE LINE:	С				ALT	TUDI	ß:	7	5	Feet
STATION G.P.A. STATION G.P.A. STATION G.P.A. STATION G.P.A Stations 1 - 21 Blank 22 0.2 23 1.8 24 1.4 25 1.5 26 0.8 27 0.9 28 2.0 29 1.9 30 1.4 31 0.7 32 0.6 33 0.2 34 0.5 35 0.4 36 0.8 37 0.4 38 0.8 39 0.7 40 0.6 41 0.2	TIME OF RELEASE	:	0436	Hours		AIR	RAF1	COUR	.SE:_	360	Degrees
Stations 1 - 21 Blank 22 0.2 23 1.8 24 1.4 25 1.5 26 0.8 27 0.9 28 2.0 29 1.9 30 1.4 31 0.7 32 0.6 33 0.2 34 0.5 35 0.4 36 0.8 37 0.4 38 0.8 39 0.7 40 0.6 41 0.2	DURATION:	9		Sec.							
Stations 1 - 21 Blank 22 0.2 23 1.8 24 1.4 25 1.5 26 0.8 27 0.9 28 2.0 29 1.9 30 1.4 31 0.7 32 0.6 33 0.2 34 0.5 35 0.4 36 0.8 37 0.4 38 0.8 39 0.7 40 0.6 41 0.2	STATION G.P.A.		STATION	G,P,A,		STATION	₹ G.	P,A.	_	STATION	G.P.A.
24 1.4 25 1.5 26 0.8 27 0.9 28 2.0 29 1.9 30 1.4 31 0.7 32 0.6 33 0.2 34 0.5 35 0.4 36 0.8 37 0.4 38 0.8 39 0.7 40 0.6 41 0.2	Stations 1 - 21	Blank	22	0.2							
25 1.5 26 0.8 27 0.9 28 2.0 29 1.9 30 1.4 31 0.7 32 0.6 33 0.2 34 0.5 35 0.4 36 0.8 37 0.4 38 0.8 39 0.7 40 0.6 41 0.2			23	1.8							
26											
27 0.9 28 2.0 29 1.9 30 1.4 31 0.7 32 0.6 33 0.2 34 0.5 35 0.4 36 0.8 37 0.4 38 0.8 39 0.7 40 0.6 41 0.2			25	1.5							
28 2.0 29 1.9 30 1.4 31 0.7 32 0.6 33 0.2 34 0.5 35 0.4 36 0.8 37 0.4 38 0.8 39 0.7 40 0.6 41 0.2			26	8.0							
29 1.9 30 1.4 31 0.7 32 0.6 33 0.2 34 0.5 35 0.4 36 0.8 37 0.4 38 0.8 39 0.7 40 0.6 41 0.2			27	0.9							
30 1.4 31 0.7 32 0.6 33 0.2 34 0.5 35 0.4 36 0.8 37 0.4 38 0.8 39 0.7 40 0.6 41 0.2			28	2.0							
31 0.7 32 0.6 33 0.2 34 0.5 35 0.4 36 0.8 37 0.4 38 0.8 39 0.7 40 0.6 41 0.2			29	1.9							
32 0.6 33 0.2 34 0.5 35 0.4 36 0.8 37 0.4 38 0.8 39 0.7 40 0.6 41 0.2			30	1.4							
32 0.6 33 0.2 34 0.5 35 0.4 36 0.8 37 0.4 38 0.8 39 0.7 40 0.6 41 0.2			31	0.7							
34 0.5 35 0.4 36 0.8 37 0.4 38 0.8 39 0.7 40 0.6 41 0.2			32	0.6							
35 0.4 36 0.8 37 0.4 38 0.8 39 0.7 40 0.6 41 0.2											
36 0.8 37 0.4 38 0.8 39 0.7 40 0.6 41 0.2			34	0.5							
37 0.4 38 0.8 39 0.7 40 0.6 41 0.2			35	0.4							
38 0.8 39 0.7 40 0.6 41 0.2			36	0.8							
39 0.7 40 0.6 41 0.2			3.7	0.4							
40 0.6 41 0.2			38	0.8							
41 0.2			39	0.7							
* **=			40	0.6							
Stations 42 - 100 Blank			Stations	42 - 1	ņņ R	lank					

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MASS MEDIAN DIAMETER

DATE: 16 July 1963	CONVERSION FACTOR: 2.2
FLIGHT #: 5	PAPER: Kromekote, white
SAMPLE LINE: C	MATERIAL: Purple
PLOW BATE: 56 GPM	SVSTEM: HTDAI

STA.	DROP #	SIZE	STA.	DROP #	SIZE
73	1	7000			
73	2	59 00			
72	7	5600			
77	3	5100*			
73	4	5000			
73	12	4900	100	1.4	100(smallest)
72	6	4700			,
72	8	4600			
72	5	4500			
72	9	4400			
72	11	4300			
72	10	4200			

MMD = $\frac{70.44+0.1431(Spot D Max)}{Con. Factor} = \frac{70.44+0.1431(5100)}{2.2} = 363.7 \text{ Microns}$

Max. Sph. Dia. = 70.44+0.1431 (Max Spot) = 70.44+0.1431 (7000) = 1072.1 Microns

Min. Sph. Dia. = 63 Microns

GPM	56	ATE:	FLOW RATE	 	rple	MATERIAL: P
	HIDAL	:	SYSTEM:		ly 1963	DATE: 16 Ju
Knots	55	ED:	AIRSPEED:			FLIGHT #:
Feet	100	DE:	ALTITUDE:		С	SAMPLE LINE:
Degrees	360	FT COURSE:_	AIRCRAFT	Hours	0455	TIME OF RELEASE:_
				Sec.	12	DURATION:
G.P.A.	STATION	G,P,A.	STATION G.P	G.P.A.	STATION	STATION G.P.A.
1.3	72				.ank	Stations 1 - 71 B
	73					
	74					
• .	75 76					
	76 77					
3.7						
	79					
	80					
	81					
	82					
	83					
0.4	84					
0.2	85					
	Stations					
86 - 100						

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5 Contact, N. O GPR

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| MATERIAL: | Purple | | FLOW RATE: | 56 | GPH. |
|-------------------|--|---|------------------|---------|---------|
| DATE: | 16 July 1963 | | System: | HIDAL | |
| FLIGHT #: | 6 | | AIRSPEED: | 55 | Knots |
| SAMPLE LINE: | С | | ALTITUDE: | 100 | Feet |
| TIME OF RELEASE: | 0455 | Hours | AIRCRAFT COURSE: | 360 | Degrees |
| DURATION: | 13 | Sec. | | | |
| STATION G.P.A. | STATION | G.P.A. | STATION G.P.A. | STATION | G,P,A, |
| Stations 1 - 19 1 | 21
22
23
24
25
26
27
28
29 | 1.6
1.6
1.9
1.3
1.3
2.6
2.2
0.8
0.3 | | | |
| | 32
33
34
Stations | 0.4 |) Blank | | |

and the second
| MATERIAL: Purple | FLOW RATE | S: <u>56</u> | GPM |
|-----------------------------|--------------|--------------|----------|
| DATE: 16 July 1963 | System:_ | HIDAL | |
| PLIGHT #:7 | AIRSPEED | 55 | Knots |
| SAMPLE LINE: D | AIRCRAFT | COURSE: 045 | Degrees |
| TIME OF RELEASE: 0513 Hour | ALTITUDE | 50 | Feet |
| DURATION: 16 Sec | <u>.</u> | | |
| STATION G.P.A. STATION G.P. | . STATION G. | | |
| Stations 1 - 73 Blank | | 74 | |
| | | 75 | |
| | | 76 | |
| | | 77 | - • • |
| | | 78 | |
| | | 79 | - • - |
| | | 80 | |
| | | 81 | |
| | | 82
83 | |
| | | 84 | |
| | | 85 | |
| | | 86 | |
| | | | 87 - 100 |
| | | Stations | Blank |
| | | | |

25 23.6 23 8 12 26 23.6 23 8 19 26 23.5 23 8 18 16 July 1861 2 July 1861 2 July 18 J 1 16 JUL 7963 Print (E & 1 3 j 0,4, 8 8 8 8 8 ζ, --: ----The section of the contract of

MASS MEDIAN DIAMETER

| DATE: 16 Ju | 1ly 1963 | CONVERSION FACTOR: 2,2 |
|--------------|----------|-------------------------|
| FLIGHT #: | 8 | PAPER: Kromekote, white |
| SAMPLE LINE: | D | MATERIAL: Purple |
| PIAL PATE | S.6. CPM | SVSTEM · HIDAI |

| STA. | DROP # | SIZE | STA. | DROP # | SIZE |
|------|--------|-------|------------|------------|----------------|
| 27 | 2 | 6100 | | | |
| 26 | 1 | 6000 | | | |
| 27 | 3 | 5900 | | | |
| 23 | 5 | 5100* | | | |
| 27 | 4 | 5000 | 5 0 | l A | 100 (smallest) |
| 27 | 7 | 4900 | | | |
| 27 | 8 | 4800 | | | |
| 25 | 6 | 4700 | | | |
| 27 | 9 | 4600 | | | |
| 28 | 11 | 4400 | | | |
| 23 | 10 | 4300 | | | |
| | | | | | |

MMD = $\frac{70.44+0.1431 \text{ (Spot D Max)}}{\text{Con. Factor}} = \frac{70.44+0.1431 \text{ (5100)}}{2.2} = 363.7 \text{ Microns}$

Max. Sph. Dia. = 70.44+0.1431(Max Spot) = 70.44+0.1431(6100) = 943.4 Microns

Min. Sph. Dia. = 63 Microns

| MATERIAL: Purp | le | | FLOW | RATE: | 56 | GPM |
|----------------------|--|--|---------|------------|---------|-----------------|
| DATE: 16 Ju | ly 1963 | | SYSTE | M: | HIDAL | |
| FLIGHT #: 8 | | | AIRSP | RED: | 55 | Knots |
| SAMPLE LINE: D | | | ALTIT | UDE: | 50 | Feet |
| TIME OF RELEASE: | 0513 | Hours | AIRCR | AFT COURSE | :045 | Degrees |
| DURATION: 1 | 2 | Sec. | | | | |
| STATION G.P.A. | STATION | G.P.A. | STATION | _G,P,A. | STATION | G. P.A . |
| Stations 1 - 21 Blan | 23
24
25
26
27
28
29
30
31
32 | 2.1
1.6
0.9
0.4
0.8
0.9
2.3
2.0
0.8
0.2 | | | | |
| | 33
34
Stations | | Blank | | | |

% Recovery - \$5.7

Total <u>14.4</u>

| MA | ∕ | | | |
|----|---|--|--|---|
| | | | | 700 640 700 800 909 1888
Summit Resump |
| | | | | 700 300 609 |

MASS MEDIAN DIAMETER

| DATE: | 16 July 19 | 963 | CONVERSION | FACTOR : 2.2 | |
|-------------|------------|-------------|------------|---------------------|--|
| FLIGHT #: | 9 | | PAPER: | Kromekote, white | |
| SAMPLE LINE | : <u>_</u> | | MATERIAL:_ | Purple | |
| FLOW RATE: | 56 | CPM | SYSTEM: | HTDAT | |

| STA. | DROP # | SIZE | STA. | DROP # | SIZE |
|------|--------|-------|------|--------|---------------|
| 78 | 1 | 5200 | | | |
| 77 | 2 | 5000 | | | |
| 78 | 3 | 4400* | | | |
| 78 | 9 | 4300 | | | |
| 79 | 5 | 4200 | 99 | 1A | 100(smallest) |
| 79 | 4 | 4100 | | | |
| 77 | 6 | 4000 | | | |
| 78 | 10 | 3900 | | | |
| 77 | 7 | 3700 | | | |
| 77 | 8 | 3600 | | | |

MMD = 70.44+0.1431(Spot D Max) = 70.44+0.1431(4400) = 318.2 Microns Con. Factor 2.2

Max. Sph. Dia. = 70.44+0.1431(Max Spot) = 70.44+0.1431(5200) = 814.6 Microns

Min. Sph. Dia. = 63 Microns

| MATERIAL: | Purple | | FLOW | RATE: | | 56 | GPM |
|-------------------|-----------|-------------|---------|-------|---------|----------|-------------|
| DATE: 16 | July 1963 | | SYSTE | M: | нт | DAL | |
| FLIGHT #: | 9 | | AIRSP | EED:_ | 75 | | Knots |
| SAMPLE LINE: | <u> </u> | | ALTII | WE:_ | | 50 | Feet |
| TIME OF RELEASE:_ | 0534 | Hours | AIRCR | AFT C | OURSE:_ | 090 | Degrees |
| DURATION: | 09 | Sec. | | | | | |
| STATION G.P.A. | STATION | G.P.A. | STATION | G.P. | Α. | STATION | G.P.A. |
| Stations 1 - 74 B | | | | | | 75 | 3.7 |
| | | | | | | 76 | |
| | | | | | | 77 | |
| | | | | | | 78
79 | 1.1 |
| | | | | • | | 79
80 | 0.9 |
| | | | | | | 80
81 | 1 3 |
| | | | | | | 82 | 1.0 |
| | | | | | | 83 | 0.9 |
| | | | | | | 84 | |
| | | | | | | 85 | |
| | | | | | | 86 | 0.7 |
| | | | | | | 87 | 0.7 |
| | | | | | | 88 | 0.4 |
| | | | | | | 89 | |
| | | | | | | | 0.3 |
| | | | | | | Stations | 91 - 100 |
| | | | | | | | Blank |
| | | | | | | | |
| | | | | | | | |

| HATERIAL: P | urple | | FLOW RATE: | 56 | GPH |
|-------------------|----------|-------------|----------------|----------|---------|
| DATE: 16 Jul | ly 1963 | | SYSTEM: | HIDAL | |
| FLIGHT #: | 10 | | AIRSPEED: | 75 | Knots |
| SAMPLE LINE: | <u> </u> | | ALTITUDE: | 50 | Feet |
| TIME OF RELEASE:_ | 0535 | Hours | AIRCRAFT COUR | LSE: 090 | Degrees |
| DURATION: | 13 | Sec. | | | |
| STATION G.P.A. | STAT ION | G.P.A. | STATION G.P.A. | STATION | G.P.A. |
| Stations 1 - 23 B | | | | | |
| | 25 | 2.0 | | | |
| | 26 | | | | |
| | 27 | | | | |
| | 28 | 1.7 | | | |
| | 29 | | | | |
| | 30 | | | | |
| | 31 | 1.2 | | | |
| | 32 | 1.1 | | | |
| | 33 | 1.0 | | | |
| | 34 | 0.9 | | | |
| | 35 | | | | |
| | 36 | | | | |
| | 37 | | | | |
| | | 0.3 | | | |
| | 39 | | | | |
| | | 60 100 | P11. | | |

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19 | T S S S S S S S S S S S S S S S S S S S | 01 20 | i. | | | |
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| 1 4 4 4 4 4 | 25 E B E B E B E B E B E B E B E B E B E | 2 Y. I. | 16 h y 1813
A A Banda, 34 0 GPH
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MASS MEDIAN DIAMETER

| DATE: 16 July 1963 | CONVERSION FACTOR: 2.2 |
|--------------------|-------------------------|
| FLIGHT #: 11 | PAPER: Kromekote, white |
| SAMPLE LINE: D | MATERIAL: Purple |
| FLOW RATE: 56 GPM | SYSTE': HIDAL |
| | |

| STA, | DROP # | SIZE | STA, | DROP # | SIZE |
|------|--------|--------------|------|--------|----------------|
| 74 | 1 | 5000 | | | |
| 75 | 2 | 4600* | | | |
| 73 | 8 | 440 0 | | | |
| 74 | 4 | 4300 | | | |
| 74 | 3 | 4100 | 89 | 1A | 100 (smallest) |
| 74 | 5 | 4000 | | | **** |
| 74 | 6 | 3900 | | | |
| 75 | 7 | 3800 | | | |
| 75 | 9 | 3700 | | | |
| 75 | 10 | 3500 | | | |
| | | | | | |

$$\frac{\text{MPD}}{\text{Con. Factor}} = \frac{70.44 + 0.1431 (\text{Spot D Max})}{\text{Con. Factor}} = \frac{70.44 + 0.1431 (4600)}{2.2} = 331.2 \text{ Microns}$$

Max. Sph. Dia. = 70.44+0.1431(Max Spot) = 70.44+0.1431(5000) = 785.9
Microns

Min. Sph. Dia. = 63 Microns

| MATERIAL: Purple | | FLOW RATE: | 56 | GPH |
|--|---------------|-----------------|---------|---------|
| DATE: 16 July 1963 | | SYSTEM: | HIDAL | |
| FLIGHT #: 11 | _ | AIRSPEED: | 75 | Knot s |
| SAMPLE LINE: D | | ALTITUDE: | 100 | Feet |
| TIME OF RELEASE: 0555 E | lours | AIRCRAFT COURSE | : 045 | Degrees |
| DURATION: 12 | Sec. | | | |
| STATION G.P.A. STATION Stations 1 - 70 Blank | G.P.A. | STATION G,P,A, | STATION | G.P.A. |
| Stations I - /U Stank | | | | |

71 1.1
72 2.0
73 1.5
74 0.7
75 0.4
76 0.4
77 1.4
78 2.6
79 2.3

Stations 80 - 100 Blank

% Recovery - 77.2

Total 12.4

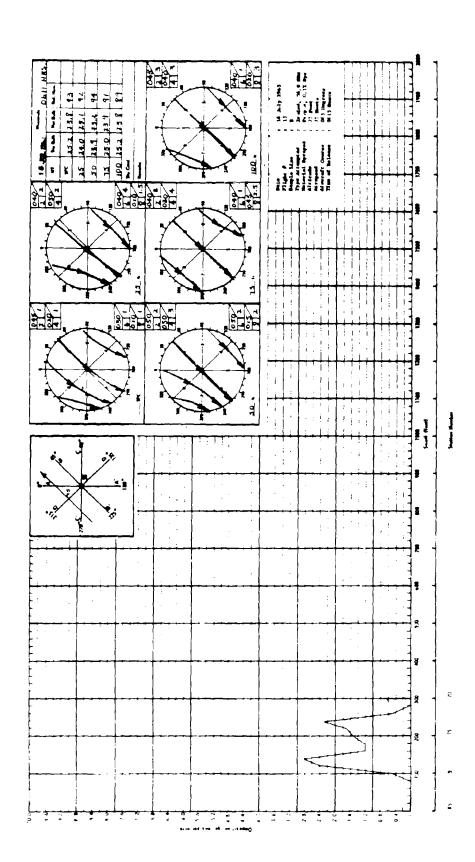
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| MATERIAL: Pur | le | | FLOW | RATE: | 56 | GPH |
|----------------------|----------------------------|---------------------------------|---------|-------------|---------|---------------------------------------|
| DATE: 16 | July 1963 | | SYSTE | H: | HIDAL | · · · · · · · · · · · · · · · · · · · |
| FLIGHT #: 12 | 2 | | AIRSP | EED: | 75 | Knot |
| SAMPLE LINE: |) | | ALTIT | WE: | 100 | Feet |
| TIME OF RELEASE: | 0558 | Hours | AIRCR | AFT COURSE: | 045 | Degrees |
| DURATION: 12 | | Sec. | | | | |
| STATION G.P.A. | STATION | G.P.A. | STATION | G.P.A. | STATION | G.P.A. |
| Stations 1- 19 Blank | 21 | 2.2
1.5
1.2
1.5
0.8 | | | | |
| | 27
28
29
30
31 | 2.0
2.4
2.7
0.1 | Blank | | | |

| MATERIAL: Purple | FLOW RATE: | 56 | GPM |
|-------------------------------|------------------|----------------|---------|
| DATE: 16 July 1963 | SYSTEM: | IIDAL | |
| FLIGHT #: 13 | AIRSPEED: | 75 | Knots |
| SAMPLE LINE:D | ALTITUDE: | 75 | Feet |
| TIME OF RELEASE: 0615 Hours | AIRCRAFT COURSE: | 045 | Degrees |
| DURATION: 8 Sec. | | | |
| STATION G,P,A, STATION G,P,A. | STATION G.P.A. | STATION | G.P.A. |
| Stations 1 - 71 Blank | | 72
73 | 0.5 |
| | | 74
75
76 | 1.7 |
| | | 75
76 | 1.5 |
| | | 76
77 | 1.2 |
| | | 78 | |
| | | 79 | |
| | | 8 0 | 0.5 |
| | | Stations | |
| | | | Blank |
| | | | |
| | .1 | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

% Recovery - 87.7

Total <u>14.1</u>



| MATERIAL: | Purple | | FLOW | RATE: | 56 | GPH |
|---|--------------|-------------|---------|----------|---------|---------------------------------------|
| DATE: | 16 July 1963 | | SYSTE | X: | HIDAL | · · · · · · · · · · · · · · · · · · · |
| FLIGHT #: | 14 | | AIRSP | EED: | 75 | Knot |
| SAMPLE LINE: | D | | ALTIT | UDE: | 75 | Feet |
| TIME OF RELEASE | :0617 | Hours | AIRCR | AFT COUR | SE: 045 | Degrees |
| DURATION: | 9 | Sec. | | | | |
| STATION G.P.A.
Stations 1 - 18 | STATION | G.P.A. | STATION | G.P.A. | STATION | G.P.A. |
| 000000000000000000000000000000000000000 | 224 | | | | | |

19 0.5
20 1.0
21 2.1
22 2.2
23 1.6
24 1.1
25 0.8
26 1.3
27 3.1
28 3.2
29 0.6
Stations 30 - 100 Blank

% Recovery - 108.9

Total <u>17.5</u>

| MATERIAL: Purple | FLOW RATE: | 56 | <u>GPM</u> |
|-------------------------------|------------------|---------|------------|
| DATE: 16 July 1963 | System: | HIDAL | |
| FLIGHT #: 15 | AIRSPEED: | 55 | Knets |
| SAMPLE LINE: D | ALTITUDE: 7 | 5 | Feet |
| TIME OF RELEASE: 0633 Hours | AIRCRAFT COURSE: | 045 | Degrees |
| DURATION: 8 Sec. | | | |
| STATION G.P.A. STATION G.P.A. | STATION G.P.A. | STATION | G.P.A. |
| Stations 1 - 69 Blank | | 70 | 0.3 |
| | | | 0.6 |
| | | | 2.0 |
| | | 73 | 2.4 |
| | | 74 | 1.2 |
| | | | 0.9 |
| | | 76 | 0.5 |
| | | 77 | 1.9 |
| | | 78 | 2.5 |
| | | 79 | 1.4 |
| | | 80 | 0.9 |
| | | 81 | 0.3 |
| | | 82 | 0.3 |
| | | 83 | 0.1 |
| | | Station | s 84 - 100 |
| | | | Blank |
| | | | |

% Recovery - 69.8

Total <u>15.3</u>

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| MATERIAL: | Purple | | FLOW RATE: | | OFF. |
|-----------------|--|--|------------------|---------|---------|
| DATE: | 16 July 1963 | | SYSTEM: | IIDAL | |
| FLIGHT #: | 16 | | AIRSPEED: | 55 | Knots |
| SAMPLE LINE: | D | | ALTITUDE: | | Feet |
| | _ | | AIRCRAFT COURSE: | | Degrees |
| DURATION: | | | | | |
| STATION G.P.A. | STATION | G.P.A. | STATION G.P.A. | STATION | G.P.A. |
| Stations 1 - 17 | 19
20
21
22
23
24
25
26
27
28
29
30
31
32
33 | 0.2
1.3
1.7
1.4
1.5
1.3
0.8
0.7
1.4
1.4
2.1
3.3
0.3
0.2 | | | |

% Recovery - 81 2

Total <u>17.8</u>

| Destroyer, Super to read) | |
|---------------------------|--|